Abstracts - Oral Presentation

Friday, April 24th, 2015 / 14:45–16:15 / Room: Verdun

O-001

FACTORS ASSOCIATED WITH EARLY MEDICAL CONSULTATION AND PROCESSES OF CARE FOR ACUTE KIDNEY INJURY AFTER MAJOR SURGERY

Kim Cheema (1), Rebecca Barry (1), Neesh Pannu (2), Elijah Dixon (1), Braden Manns (1), Brenda Hemmelgarn (1), Matthew James (1)
(1) University of Calgary
(2) University of Alberta

Background: Acute kidney injury (AKI) occurs in 5-8% of hospitalized patients, with perioperative AKI accounting for 30-40% of these events. Currently there is little information on patterns of medical consultation in post-operative patients who develop AKI and the associations between consultation and processes of care in AKI management are unclear.

Objectives: The objectives of this study were to; 1) identify patient factors associated with early medical consultation following post-operative AKI and, 2) to determine the association between early medical consultation and processes of care in patients with post-operative AKI.

Methods: We performed a retrospective cohort study in patients undergoing major non-cardiac surgery in Calgary, Alberta between 2005-2012. AKI was defined according to the KDIGO definition. Early medical consultation consisted of an internal medicine or nephrology consultation within 48 hours of AKI onset. We developed a propensity score for early medical consultation following AKI and matched patients who received early consultation 1:1 with those who did not based on their AKI stage and propensity scores.

Results: 772 patients met the inclusion criteria, with 142 (18%) receiving early medical consultation. Patients who received early medical consultation were significantly older and more often had CKD, CHF, COPD, CAD, diabetes, cerebrovascular disease, hypertension, and liver disease. Following propensity score matching, those with early medical consultation were more likely to be prescribed diuretics (45 versus 29%), or ACEi/ARBs (19 versus 8%); however, there were no significant differences in exposure to NSAIDs, intravascular contrast or cumulative intravenous fluids following AKI.

Conclusions: Our findings indicate substantial differences in the characteristics of patients, but relatively small differences in processes of care for AKI between patients who receive early medical consultation and those who do not. Traditional medical consultation may not be the most effective approach to improve the quality of care for AKI after major surgery.

Abstracts - Oral Presentation

Friday, April 24th, 2015 / 14:45–16:15 / Room: Verdun

O-002

KIDNEY INJURY MOLECULE- 1 (KIM-1) PROTECTS FROM RENAL ISCHEMIA-REPERFUSION INJURY

Lakshman Gunaratnam (1), Ola Ismail (1), Xizhong Zhang (1), Junjun Wei (1), Giulia Martone (1), Sahra Nathoo (1), Aaron Haig (1), Rita Suri (2)
(1) Western University
(2) University of Montreal

Background: Kidney injury molecule-1 (Kim-1) is a receptor for phosphatidlyserine, an "eat-me" signal on the surface of apoptotic cells (Acs). After acute kidney injury (AKI), Kim-1 is upregulated on surviving renal proximal tubular epithelial cells (PTECs), allowing them to become semi-professional phagocytes for ACs. However, the functional significance of Kim-1 *in vivo* is unclear.

Hypothesis: We hypothesized that Kim-1 is required for phagocytic clearance of ACs by PTECs to limit release of inflammatory mediators such as danger associated molecular pattern proteins (DAMPs) (eg. HMGB1) from uncleared ACs, and thus would be protective during renal ischemia reperfusion injury.

Methods: We compared phagocytosis of ACs between primary PTECs from Kim-1-deficient (KO) and *wild-type* mice (WT) using flow cytometry. We measured extracellular HMGB1 using Western blot. We subjected KO and WT mice to bilateral renal clamping and measured serum creatinine and assessed tissue injury by histology.

Results: Primary PTECs from KO mice exhibited significantly reduced phagocytosis of ACs compared to PTECs from WT mice. We detected significantly more HMGB1 in the extracellular media of PTECs from KO vs. WT mice that were fed ACs. After 30 min of ischemia and 24h of reperfusion, renal function was significantly worse in KO compared to WT mice (serum creatinine 198±30mmol/L vs. 87±60mmol/L, p=0.002). After 48h of reperfusion, 7/11 KO but 0/5 WT mice had died (p=0.017). When we reduced ischemia time to 25 min, WT mice maintained near-normal renal function (creatinine 17±13mmol/L) while KO mice developed severe renal dysfunction (creatinine 111±79mmol/L, p=0.001) after 48 h of reperfusion. In addition, KO mice exhibited worse histological renal damage (median ischemia-reperfusion-injury histological score 3 vs. 2, p=0.006), and more ACs compared to WT mice.

Conclusions: Our results suggest that Kim-1 is essential to limit renal damage after ischemic AKI in mice by enabling PTECs to clear ACs.

AGM 2015
MONTREAL, QC

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

Abstracts - Oral Presentation

Friday, April 24th, 2015 / 14:45–16:15 / Room: Verdun

O-003

VALIDATION OF THE KIDNEY FAILURE RISK EQUATION IN MANITOBA

Navdeep Tangri, Reid Whitlock
Seven Oaks General Hospital

Background: Patients with chronic kidney disease (CKD) are at risk for progression to kidney failure. Predicting the progression of CKD can inform patient provider communication, and policy decisions. We previously developed the kidney failure risk equation (KFRE) to predict the progression of CKD in patients referred to nephrologists. Validation in unreferred populations and determination of risk thresholds for disease surveillance is needed.

Objectives: To validate the KFRE in Manitoba, and to determine risk thresholds for clinical decision-making.

Methods: We included all patients from the Diagnostic Services of Manitoba database (DSM), who had an eGFR < 60 ml/min and a urinary albumin creatinine ratio measured between October 1, 2006 - March 31, 2007. The 5-year kidney failure risk was predicted using the 4-variable KFRE and compared with the kidney failure events from the Manitoba Renal Program database. Sensitivity and specificity for KFRE based thresholds (3 % and 10 % over 5 years) were then compared to eGFR thresholds of 30 and 45 ml/min.

Results*:* A total of 1,512 patients were included; 151 developed kidney failure. The 4-variable KFRE more accurately predicted kidney failure when compared to eGFR. (AUROCs 0.90 [95 % confidence interval (CI) 0.88-0.92] for KFRE vs. 0.78 [95 % CI 0.74-0.83] for eGFR) At a risk threshold of 3 % over 5 years, the KFRE had a sensitivity of 97 % and a specificity of 62 %.

Conclusions*:* The KFRE is highly accurate at predicting the risk of dialysis in a population based sample of Manitobans with CKD. A 3 % risk threshold over 5 years, based on the KFRE is highly sensitive, modestly specific and should be considered criteria for determining nephrology referral. Integration of the KFRE in laboratory information systems, as well as testing of the 3 % threshold in clinical decision support is needed.

Abstracts - Oral Presentation

Friday, April 24th, 2015 / 14:45–16:15 / Room: Verdun

O-004

ASSOCIATIONS OF PRE-TRANSPLANT PRESCRIPTION NARCOTIC USE WITH CLINICAL COMPLICATIONS AFTER KIDNEY TRANSPLANTATION

Krista Lentine (1), Ngan Lam (2), Huiling Xiao (1), Janet Tuttle-Newhall (1), David Axelrod (3), Daniel Brennan (4), Vikas Dharnidharka (4), Hui Yuan (1), Mustafa Nazzal (1), Jie Zheng (4), Mark Schnitzler (1)
(1) Saint Louis University
(2) Western University
(3) Dartmouth Hitchcock Medical Center
(4) Washington University

Background: Associations of narcotic use before kidney transplantation with post-transplant clinical outcomes are not well described.

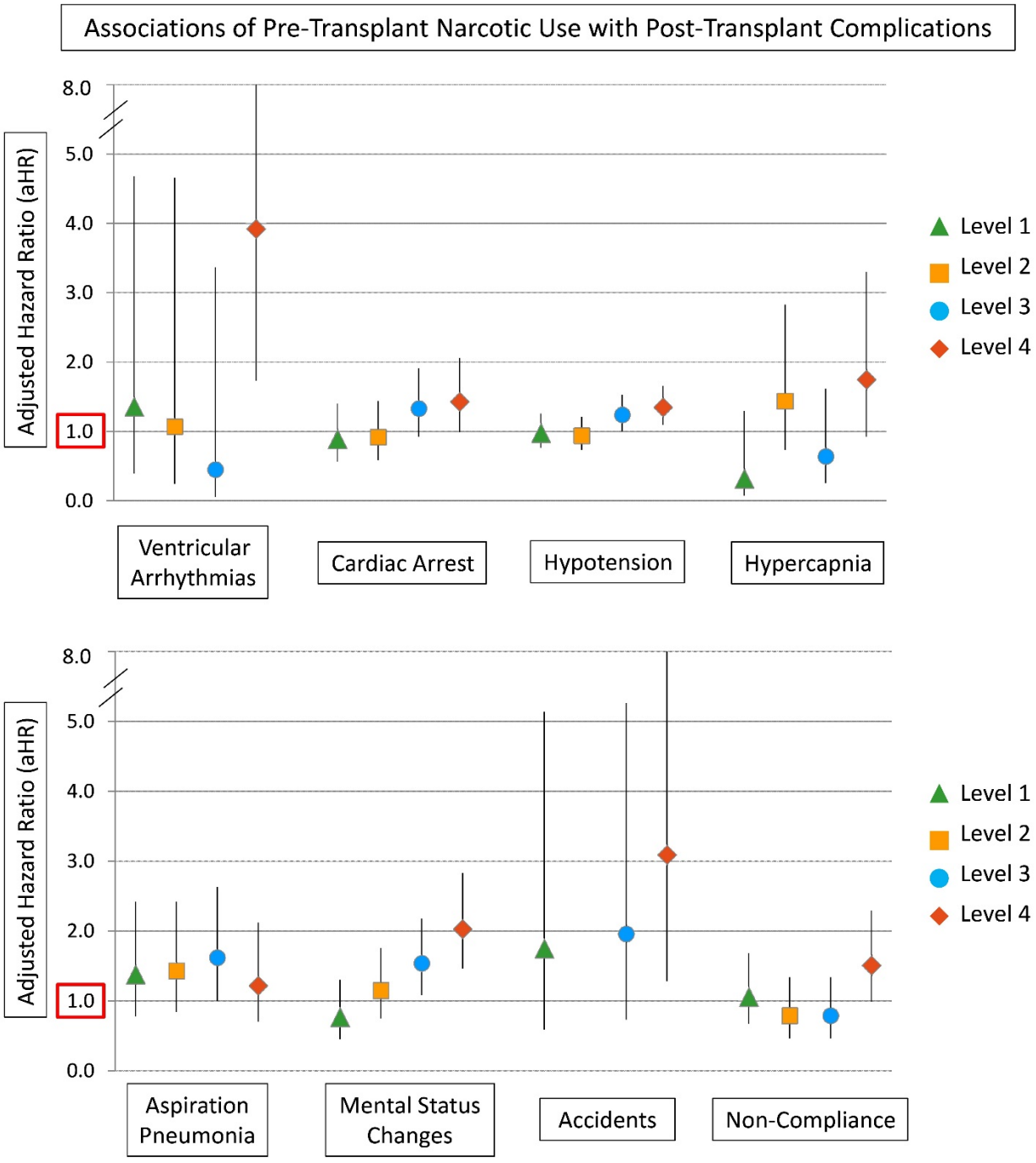
Methods: We performed a retrospective analysis of integrated national transplant registry, pharmacy fill records and Medicare billing claims to follow 16,322 kidney transplant recipients, of whom 4624 (28.3%) had evidence of a narcotic prescription filled in the year prior to transplantation. Opioid analgesic fills were normalized to morphine equivalents (ME) and expressed as mg/kg exposures, with approximate quartiles defined as: 0.1–1.7, 1.8–5.4, 5.5–23.7 and >23.8 mg/kg, respectively. Post-transplant cardiovascular, respiratory, neurological, accidents and non-compliance events were identified using diagnosis codes on Medicare billing claims. Adjusted associations of ME level with post-transplant complications were quantified by multivariate Cox regression.

Results: The incidence of complications at 3-years post-transplant among those with the highest pre-transplant ME exposure compared to no use included: ventricular arrhythmias, 1.1% vs. 0.2% ($p<0.001$); cardiac arrest, 4.7% vs. 2.7% ($p<0.05$); hypotension, 14% vs. 8% ($p<0.0001$); hypercapnia, 1.6% vs. 0.9% ($p<0.05$); mental status changes, 5.3% vs. 2.7% ($p<0.001$); accidents, 0.9% vs. 0.3% ($p<0.05$); and non-compliance, 3.5% vs. 2.3% ($p<0.05$). In multivariate adjusted analyses, transplant recipients with the highest level of pre-transplant narcotic use had approximately 2- to 4-times the risks of post-transplant ventricular arrhythmias, mental status changes, and accidents compared with non-users, and approximately 35% to 45% higher likelihood of post-transplant cardiac arrest and hypotension.

Conclusions: Although associations may reflect underlying conditions or behaviors, high-level prescription narcotic use before kidney transplantation predicts increased risk of clinical complications after transplantation.

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

O-004



AGM 2015
MONTREAL, QC

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

Abstracts - Oral Presentation

Friday, April 24th, 2015 / 14:45–16:15 / Room: Verdun

O-005

TARGETED DEPRESCRIBING IN AN OUTPATIENT HEMODIALYSIS UNIT TO DECREASE POLYPHARMACY: A PILOT STUDY

Marisa Battistella, Caitlin McIntyre, Jacob Cashin, Angela Wright
University of Toronto

Introduction: Patients on hemodialysis (HD) are exposed to polypharmacy by taking on average 12 medications per day, resulting in decreased adherence, and a higher risk of adverse drug events, hospitalization and mortality. Deprescribing tools have been successfully implemented in an elderly inpatient population; however no such tool exists for an outpatient HD population.

Purpose: A pilot study was conducted to (1) develop deprescribing algorithms for target medications that have poor evidence for efficacy and safety in the HD population, (2) determine the effectiveness of these algorithms in decreasing polypharmacy when incorporated into current practice in the HD unit, (3) monitor patient safety and satisfaction.

Methods: Five medication classes were selected (quinine, diuretics, alpha-1 blockers, proton pump inhibitors (PPI), and statins) and medication specific algorithms were developed and validated. In a single-center prospective observational pilot study, these algorithms were applied and monitored to three HD shifts.
Results: Out of the 60 patients screened, 60 potentially inappropriate medications were identified in 43 (72%) patients. Twelve study medications (six diuretics, five PPIs, and one alpha-blocker) in 10 (16.7%) patients met the eligibility criteria and were deprescribed. After 1 week, 2 patients were re-prescribed a PPI due to an increase in reflux symptoms after discontinuation. One patient was represcribed furosemide due to an increase in headaches. The remainder of the patients had no clinically significant change from baseline in specified monitoring parameters, thus completed the respective deprescribing algorithm. The average number of medications per day decreased from 14.5 $\pm$ 4.2 to 13.5 $\pm$ 4.2 (n=10).

Conclusion: In this pilot study, it was revealed that a large portion of patients in the HD unit may be taking potentially inappropriate medications that require re-assessment using these deprescribing algorithms. When patients were deprescribed an inappropriate medication, patient safety and satisfaction was maintained throughout the monitoring period.

AGM 2015
MONTREAL, QC

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

Abstracts - Oral Presentation

Friday, April 24th, 2015 / 14:45–16:15 / Room: Verdun

O-006

PLASMA URIC ACID EFFECTS ON GLOMERULAR HEMODYNAMIC PROFILE OF PATIENTS WITH UNCOMPLICATED TYPE 1 DIABETES MELLITUS

Yuliya Lytvyn, Marko Škrtić, Gary Yang, Vesta Lai, Paul Yip, Bruce Perkins, David Cherney
University of Toronto

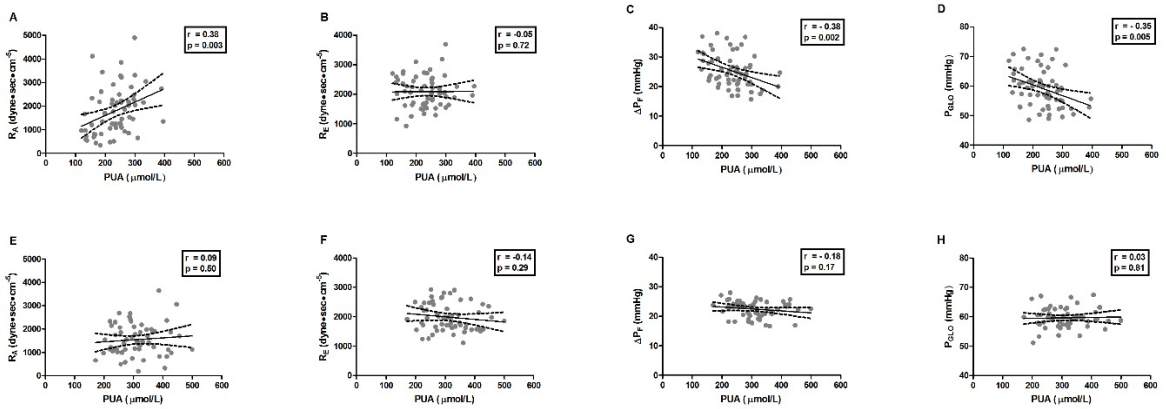
Objective: Increased plasma uric acid (PUA) levels are associated with impaired renal function in patients with type 1 diabetes (T1D), but the mechanisms responsible are not well understood. Our aim was to evaluate whether higher PUA levels are associated with increased afferent arteriolar resistance in T1D vs healthy controls (HC), thereby influencing renal function.

Methods: PUA, glomerular filtration rate (GFR - inulin) and effective renal plasma flow (ERPF - paraaminohippurate) were measured in 62 otherwise healthy T1D patients and 60 HC. Gomez's equations were used to derive afferent (R_A) and efferent (R_E) arteriolar resistances, glomerular hydrostatic pressure (P_{GLO}) and filtration pressure (ΔP_F). The associations between PUA and glomerular hemodynamic parameters were assessed by Pearson correlation coefficients.

Results: In T1D, higher PUA correlated with lower P_{GLO} (p=0.005) and ΔP_F (p=0.002), higher R_A (p=0.003), but not with R_E (p=0.72). In addition, higher PUA correlated with lower GFR (p=0.002), lower ERPF (p=0.009), lower RBF (p=0.05), and higher RVR (p=0.029). There were no significant correlations between PUA and renal haemodynamic parameters in the HC.

Conclusions: The correlation between higher PUA and lower GFR and ERPF in T1D but not HC is driven by alterations in R_A rather than R_E, suggesting that the diabetic milieu potentiates the renal effects of PUA. We hypothesize that PUA-mediated increase in R_A may be caused by increased tone or thickening of the afferent renal arteriole, which could lead to renal injury by causing ischemia to the renal microcirculation.

O-006


A
r = 0.38
p = 0.003
R_A (dyne•sec•cm^{-5})
PUA (µmol/L)
B
r = -0.05
p = 0.72
R_E (dyne•sec•cm^{-5})
PUA (µmol/L)
C
r = - 0.38
p = 0.002
ΔP_F (mmHg)
PUA (µmol/L)
D
r = - 0.35
p = 0.005
P_{GLO} (mmHg)
PUA (µmol/L)
E
r = 0.09
p = 0.60
R_A (dyne•sec•cm^{-5})
PUA (µmol/L)
F
r = -0.14
p = 0.29
R_E (dyne•sec•cm^{-5})
PUA (µmol/L)
G
r = - 0.18
p = 0.17
ΔP_F (mmHg)
PUA (µmol/L)
H
r = 0.03
p = 0.81
P_{GLO} (mmHg)
PUA (µmol/L)

AGM 2015
MONTREAL, QC

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-007

EXOSOMES FROM HUMAN ENDOTHELIAL COLONY FORMING CELLS PROTECT AGAINST ACUTE KIDNEY INJURY BY ACTIVATING THE AKT PRO-SURVIVAL PATHWAY: ROLE OF MIR-486

Kevin Burns (1), Jose Viñas (1), Dylan Burger (1), Shareef Akbari (1), Hajira Dehak (1), William Knoll (1), Alex Gutsol (1), Rhian Touyz (2), David Allan (1)
(1) University of Ottawa
(2) University of Glasgow

Background: We have previously shown that human cord blood endothelial colony forming cells (ECFCs) are protective in a mouse model of acute kidney injury (AKI), without tissue engraftment. Extracellular vesicles (EVs) exert biological effects by horizontal miRNA (miR) transfer. Two main classes of EVs exist with distinct properties (exosomes [40-100 nm] and microparticles [100-1000 nm]). We recently found that cultured ECFCs release exosomes that are highly enriched in miR-486-5p. In the present studies we determined the role of ECFC exosomes in hypoxia-induced endothelial cell injury.

Methods: Mice subjected to ischemic AKI were injected with ECFCs or vehicle at the time of reperfusion. Human umbilical vein endothelial cells (HUVECs) were treated with ECFC EVs and subjected to hypoxia/reoxygenation (H/R). Apoptosis was assessed by expression of caspase-3, and by AKT phosphorylation and expression of phosphatase and tensin homologue (PTEN). In some experiments, ECFCs were transfected with miR-486-5p antagomir.

Results: In mice with AKI, ECFCs blocked increases in renal apoptosis, associated with increased levels of miR-486-5p, decreased PTEN expression and increased AKT phosphorylation ($p<0.05$ vs vehicle, $n=6$). In HUVECs, H/R-induced apoptosis was inhibited by ECFC exosomes, or by ECFC-conditioned medium (CM) ($p<0.001$, $n=3$). CM depleted of EVs had no effect on apoptosis. Under normoxic conditions, microparticles stimulated apoptosis and expression of the pro-inflammatory protein ICAM-1. Administration of either ECFC-CM or exosomes to HUVECs increased miR-486-5p levels, decreased PTEN expression and induced AKT phosphorylation. CM from ECFCs transfected with antagomir to miR-486-5p blocked these effects and did not protect against H/R-induced apoptosis.

Conclusions: These data show that the protective effects of human ECFCs are mediated by exosomes activating the pro-survival AKT pathway, possibly due to transfer of miR-486-5p and subsequent PTEN inhibition. Exosomes enriched in miR-486-5p could represent a therapeutic tool in human AKI.

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-008

AN OVERVIEW OF THE SEE KIDNEY DISEASE TARGETED SCREENING PROGRAM FOR CKD IN CANADA

Lauren Galbraith (1), Lianne Barnieh (1), Braden Manns (1), Valk Nadine (2), Joanne Kappel (3), Brenda Hemmelgarn (1)
(1) University of Calgary
(2) Kidney Foundation of Canada
(3) University of Saskatchewan

Background
Early recognition of chronic kidney disease (CKD), including targeted screening, is recommended, however the optimal strategy for targeted screening is unknown. The See Kidney Disease (SeeKD®) Targeted Screening project, launched by The Kidney Foundation of Canada (KFOC) in 2011, aimed to identify participants with CKD, with the goal of increasing awareness and self-management to delay CKD progression. The SeeKD program was rolled out across 7 KFOC Branches in Canada using two screening strategies. We describe the SeeKD® screening events, and compare participant characteristics by screening strategy (targeted screening vs community-based mass screening).

Methods
The 7 KFOC Branches conducted screening events following a three-step protocol to identify and test participants at risk for CKD. We conducted a semi-structured telephone interview with each Branch between July 2014 and September 2014 to obtain detailed information regarding the SeeKD® screening strategies. Descriptive statistics were used to compare participant characteristics by screening strategy.

Results
Between January 2011 and February 2014, 6447 Canadians were screened. Participants were predominantly female (65.1%) and over 55 years of age (59.4%). There was no difference in the proportion of participants identified as “high risk” for CKD by targeted or community-based mass screening (88.9% vs. 89.8%; $p = 0.261$). However, the prevalence of CKD was significantly higher in the targeted compared with the community-based mass screening events (21.2% vs 13.3%; $p < 0.0001$). Self-reported health knowledge of CKD varied by screening type, 69.4% of people at targeted screening events had heard of CKD compared with 75.7% of people at community-based mass screening events ($p< 0.0001$).

Conclusion
Targeted screening is able to identify more individuals with CKD as compared to community-based mass screening. Future research will evaluate the effectiveness of the screening strategies in identifying individuals at varying stages of CKD.

AGM 2015
MONTREAL, QC

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-009

THR-184: A NOVEL PEPTIDE FOR THE TREATMENT OF ISCHEMIA-REPERFUSION-INDUCED AKI IN RAT

Gilles Dube (1), Silvia Campos-Bilderback (2), Ruben Sandoval (2), Dattatreyamurty Bosukonda (1), Peter Keck (1), Roger Leger (1), Philippe Bey (1), Andreas Orfanos (1), William Carlson (1), Bruce Molitoris (2)
(1) Thrasos Therapeutics
(2) Indiana University

Background:
THR-184 is a novel peptide that displays therapeutic potential for preventing and treating AKI induced by a renal ischemia-reperfusion insult. THR-184 has been shown to distribute to kidneys following iv administration and exert anti-inflammatory and anti-apoptotic effects in renal proximal tubule cells. The mechanism of action involves the activation of the Bone Morphogenetic Protein (BMP) pathway.

Method:
THR-184 was administered using a 60 minute intravenous infusion prior to or post injury, or in a combination of pre and post, to normal adult rats undergoing right kidney clamp ischemia and contralateral nephrectomy. Serum and urine creatinine (sCr and uCr) levels were monitored to determine efficacy and potency on AKI. Histological analysis was also conducted.

Resutls:
A 30 min ischemic episodes resulted in an 8.2 (± 0.5, n=11) fold increase of the sCr measured 24h post-insult and an approximate 100-fold decrease in GFR compared to control. A 60 min i.v. infusion of THR-184 (1 mg/kg) administered 30 min post clamp release produced a 65% reduction in sCr. The effect was dose-dependent [ED_{50} ~20 µg /kg (pED_{50}= 4.7 ± 0.18, hill = 1.05)] with maximal efficacy measured with 1 mg/kg. A 1h infusion prior to the ischemic insult also produced a dose-dependent effect (ED_{50} ~10 µg/kg). Further increase in efficacy was observed when a combination pre- and post-clamp dosing was given. THR-184 had a significant beneficial effect on GFR (ml/min/100g) (from 0.690 ± 0.049 at baseline to 0.009 ± 0.003 with vehicle, versus 0.195 ± 0.037 with 1mg/kg THR-184; $p<0.001$ Veh vs. THR-184). Analysis of kidney sections showed significantly fewer histological lesions in animals treated with THR-184.

Conclusion:
THR-184 displayed an excellent efficacy profile in the rat model of ischemia-reperfusion injury, which has led to its current evaluation in a human phase 2 clinical trial on patients with cardiac surgery-associated AKI

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-010

THE ASSOCIATION OF CHRONIC KIDNEY DISEASE STAGE, ALBUMINURIA AND MAJOR HEMORRHAGE

Amber O. Molnar (1), Amit X. Garg (2,3), Sarah E. Bota (2,3), Eric McArthur (2), Manish M Sood (1)
(1) University of Ottawa
(2) Institute for Clinical Evaluative Sciences
(3) Institute for Clinical Evaluative Sciences; Western University

Background:
Individuals with chronic kidney disease (CKD) have an increased risk of hemorrhage. However, the extent of the increased risk, especially in less severe CKD, and the effect of albuminuria remain largely unknown.

Objective:
To characterize the incidence of hemorrhage across all stages of CKD as defined by estimated glomerular filtration rate (eGFR) and urine albumin to creatinine ratio (ACR).

Methods:
We conducted a retrospective cohort study using administrative databases in the province of Ontario, Canada from 2002 to 2010. Individuals were stratified on eGFR at cohort entry (≥90, 60-89, 45-59, 44-30, 15-29, and <15 ml/min/1.73 m^2 or chronic dialysis). The primary outcome was hospitalization with a validated diagnosis of major non-traumatic hemorrhage over a follow-up of 3 years.

Results:
Among 781,879 adults ≥40 years of age, the incidence of hemorrhage increased in a graded manner as eGFR declined. The 3 year cumulative incidence of hemorrhage across all 6 eGFR strata were 0.7% (95% confidence interval (CI) 0.6 to 0.7), 1.4% (95% CI 1.4 to 1.4), 2.9% (95% CI 2.8 to 3.0), 4.4% (95% CI 4.2 to 4.7), 6.9% (95% CI 6.4 to 7.4), and 11.8% (95% CI 11.3 to 12.4). This graded increase in hemorrhage risk remained after adjustment for demographic characteristics, co-morbidities, albuminuria and year of cohort entry. In adults ≥66 years of age with medication data, the association persisted after adjustment for anticoagulants and antiplatelets. Among patients within the same CKD stage, increasing albuminuria was associated with a graded increase in hemorrhage risk.

Conclusions:
Our data suggest that the risk of major non-traumatic hemorrhage requiring hospitalization increases in a graded manner with declining eGFR and increasing albuminuria. Interventions to reduce hemorrhage among patients with CKD are warranted.

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-011

EARLY VERSUS LATE CHANGES IN AORTIC STIFFNESS AFTER SUCCESSFUL KIDNEY TRANSPLANTATION: RESULTS FROM 2-YEAR FOLLOW-UP.

Mohsen Agharazii, David Turgeon, Julie Lesage, Catherine Fortier, Sophie Ignace, Karine Marquis, Sacha A. De Serres, Isabelle Côté, Isabelle Houde, Fabrice Mac-Way
CHU de Québec

Background:
We have previously shown that there is a blood pressure independent reduction in aortic stiffness as early as 3 months after successful a kidney transplantation (KTx).

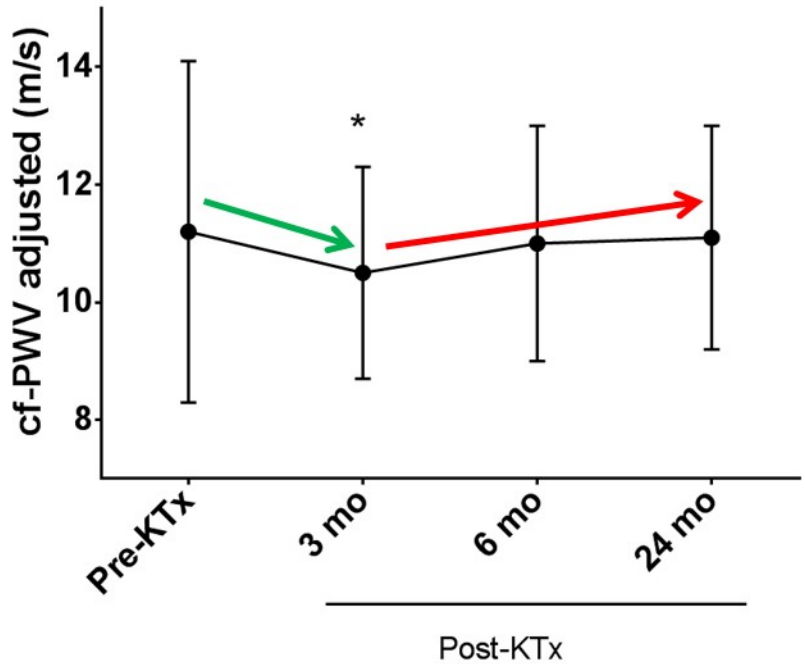
Objective:
The purpose of the present study is to examine the effects of KTx on changes in aortic stiffness after 2 years of follow-up.

Method:
In this prospective, longitudinal observational study, we studied hemodynamic and biological parameters prior to KTx and 3, 6 and 24 months after a KTx in 59 dialysis patients. Aortic stiffness was measured by carotid-femoral pulse wave velocity (cf-PWV) and enhanced central wave reflection was evaluated by the heart rate adjusted central augmentation index (AIx) by means of arterial tonometry. A successful kidney transplant was defined by an estimated eGFR of ≥ 45 mL/min/1.73 m^2 at the time of the measurement of aortic stiffness. GEE was used to take into account the repeated measures of aortic stiffness and mean blood pressure. Values are reported as mean±SEM unless otherwise specified.

Results:
The mean age was 48±14 years, with 70% male, 20% with cardiovascular disease and 25% diabetes. After adjusting for mean blood pressure, cf-PWV decreased significantly from 11.2±0.33 to 10.3±0.30 by 3 months (P=0.042), but it increased to 10.8±0.31 and 11.2±0.33 (m/s) by 6 and 24 months (P=NS). The rate of progression of aortic stiffness beyond 6 months was 0.248 m/s/year.

Conclusion:
After an initial improvement of aortic stiffness, there is a progression of aortic stiffness that is numerically lower than what has been previously been reported in dialysis population.

P-011



Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-012

ANTI-LG3 ANTIBODIES AGGRAVATE RENAL ISCHEMIA-REPERFUSION INJURY AND INCREASE THE RISK OF DELAYED AND SLOW GRAFT FUNCTION

Héloise Cardinal (1), Bing Yang (1), Katia Hamelin (1), Mélissa Hénault-Rondeau (1), Luc Pomerleau (1), Junzheng Peng (1), Johanne Tremblay (1), Natalie Patey (2), Marie-Josée Hébert (1)
(1) Université de Montréal
(2) CHU Ste-Justine Université de Montréal

Introduction:
We have previously shown that pre-transplant anti-LG3 autoantibodies were associated with an increased risk of acute vascular rejection in kidney transplant recipients (KTR). In a murine model of aortic transplant rejection, passive transfer of anti-LG3 antibodies increased vascular injury and inflammation. Microvascular injury is recognized as an important component of ischemia-reperfusion injury (IRI). Hence, we now ask whether pre-existing anti-LG3 antibodies are associated with delayed/slow graft function (DGF/SGF) in KTR, and whether they can aggravate IRI-associated renal dysfunction.

Methods:
Human study: In a retrospective cohort study, pre-transplant anti-LG3 levels were measured in consecutive KTR between January 1st, 2008 and June 1st, 2013. DGF was defined as the need for dialysis in the first post-transplant week, and SGF was defined a decrease of serum creatinine by less than 10% on the first 3 post-operative days. The relationships between DGF/SGF and anti-LG3 titers were explored through logistic regression. Animal study: Unilateral renal artery clamping for 30 minutes plus contra-lateral nephrectomy was performed in C57Bl/6 mice. Intra-venous injections of anti-LG3 antibodies or mouse control IgG were performed 2 days prior to surgery and every other day thereafter. Serum, urine and kidneys were collected at day 7 post-IRI.

Results:
Among the 173 patients studied, 52 experienced DGF/SGF. In a multivariate logistic regression model, pre-transplant anti-LG3 levels were independently associated with DGF/SGF (OR: 1.32 , 95%CI: 1.06-1.63). Donor type, deceased donor compared to living (OR: 2.92, 95% CI: 1.28-6.64)) also increased the risk of DGF/SGF. Mice passively transferred with anti-LG3 antibodies had higher creatinine levels at day 7 post-IRI ($p = 0.04$) and an increase in immunohistochemistry staining for C4d in glomerular and peritubular capillaries($p < 0.01$).

Conclusion:
Together, our results suggest that IRI creates permissive conditions allowing anti-LG3 autoantibodies to enhance vascular damage and renal dysfunction.

AGM 2015
MONTREAL, QC

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-013

HEALTH-RELATED QUALITY-OF-LIFE IN ACUTE KIDNEY INJURY SURVIVORS IN THE INTENSIVE CARE UNIT: A SYSTEMATIC REVIEW

Pierre-Marc Villeneuve (1), Edward Clark (2), Lindsey Sikora (3), Sean Bagshaw (1)
(1) University of Alberta (2) Ottawa Hospital Research Institute, University of Ottawa
(3) University of Ottawa

Background
Acute kidney injury (AKI) is a serious complication of critical illness associated with high morbidity, mortality and health resource utilization. Increasingly, there has been greater focus on the long-term survivorship experience among critically ill survivors of AKI. Health-related quality-of-life (HQRL) is an important patient-centered outcome and has been variably described in survivors of AKI.

Objectives
To perform a systematic review of the literature for studies describing the long-term HRQL among survivors of AKI.

Methods
We performed a comprehensive OVID search of MEDLINE, EMBASE and CENTRAL. We included studies reporting original data describing HRQL utilizing validated instruments. Search, study selection and data abstraction were performed in duplicate. Study quality was appraised. Due to study heterogeneity, data are primarily summarized qualitatively.

Results
Our search yielded 2193 articles of which 18 were included. Study quality was generally good. Numerous HRQL instruments were utilized and assessment occurred at variable times (range 6 months – 15 years). HRQL among AKI survivors was reduced when compared to age/sex matched populations. HRQL among survivors with and without AKI was generally described as similar beyond 6 months. The temporal trends in HRQL after critical illness compared with baseline assessment were not significantly different. Physical component domains were consistently lower compared with mental component domains. Survivors had considerable limitations in activities of daily living implying new disability and few returned to work. Despite impaired HRQL; patients' self-perceived HRQL was generally good and most would receive similar treatment again if necessary.

Conclusion
Among survivors of critical illness complicated by AKI; HRQL was likely reduced at baseline and impaired when referenced to population norms; however, not significantly different when compared to survivors without AKI. Importantly, the impaired HRQL was generally perceived as acceptable to patients who expressed willingness to undergo similar treatment in the future.

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-014

VASCULAR-SPECIFIC EP4 RECEPTOR DELETION IN MICE INCREASES ANGIOTENSIN II-INDUCED RENAL INJURY

Jean-Francois Thibodeau, Chet Holterman, Greg Cron, Anthony Carter, Ying He, Christopher Kennedy
Ottawa Hospital Research Institute

Cyclooxygenase (COX)-inhibition by chronic NSAID use is contraindicated in hypertensive patients as it may reduce GFR by diminishing renal blood flow (RBF). COX-derived prostaglandin E2 (PGE2) exerts a vasodilatory effect on the renal vasculature by counteracting pressor hormones such as angiotensin II (AngII), a major target of anti-hypertensive therapies. In the renal microcirculation, the PGE2 response is primarily governed by pre-glomerular E-Prostanoid 4 (EP4) receptors expressed in vascular smooth muscle cells (VSMC). We hypothesized that loss of PGE2/EP4 signaling in patients treated with NSAIDs predisposes the kidney to unopposed AngII-mediated vasoconstriction, thereby decreasing GFR, RBF, and increasing renal injury. We generated mice with inducible VSMC-specific EP4 receptor deletion ($EP4^{VSMC-/-}$) under control of the tamoxifen-sensitive smooth-muscle actin promoter and subjected them to AngII-induced hypertension by osmotic mini-pumps (1000 ng/kg/min, s.c.). EP4 deletion was verified by qPCR of aorta and renal vessels, as well as functionally by the loss of PGE2-mediated mesenteric artery relaxation by wire myography. After 4 weeks both AngII-treated wild type (WT) and $EP4^{VSMC-/-}$ groups were similarly hypertensive (WT, 104±1; AngII, 169±5; $EP4^{VSMC-/-}$, 106±7; $EP4^{VSMC-/-}$ + AngII, 178±5 mmHg, SBP, $p \leq 0.01$) while albuminuria was exacerbated in $EP4^{VSMC-/-}$ mice vs. WT mice (WT, 430±70; AngII, 917±284; $EP4^{VSMC-/-}$, 354±54; $EP4^{VSMC-/-}$ + AngII, 2907±420 µg albumin/mg creatinine, $p \leq 0.01$). AngII-treatment in $EP4^{VSMC-/-}$ mice but not in WT mice led to severe glomerular scarring (WT, 29±1; AngII, 32±1; $EP4^{VSMC-/-}$, 31±1; $EP4^{VSMC-/-}$ + AngII, 44±2 % glomerular area, $p \leq 0.01$) and tubulointerstitial fibrosis. AngII significantly lowered GFR in $EP4^{VSMC-/-}$ mice, but not in WT mice (WT, 0.26±0.04; AngII, 0.24±0.07; $EP4^{VSMC-/-}$, 0.16±0.05; $EP4^{VSMC-/-}$ + AngII, 0.07±0.02 mL/min, $p \leq 0.01$). Lastly, AngII-treated $EP4^{VSMC-/-}$ mice showed evidence of capillary rarefaction and reduced RBF as measured by dynamic CE-MRI. These data suggest that renovascular EP4 receptors buffer the actions of AngII upon GFR and RBF and thereby protect against hypertension-associated structural damage.

AGM 2015
MONTREAL, QC

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-015

EFFECT OF FLUID LOSS FOLLOWING HEMODIALYSIS ON TIBIALIS ANTERIOR MUSCLE STRENGTH: A PILOT STUDY

Anuradha Sawant
London Health Science's Center

Background:
People with end-stage renal disease (ESRD) requiring hemodialysis (HD) are prone to have progressive muscle weakness. Although clinical symptoms such as hypotension and intradialytic cramps have been associated with volume depletion or dehydration, such HD-related dehydration or volume depletion has not yet been linked to poor response to exercise interventions or muscle weakness leading to functional deterioration in this population.

Objectives:
1. Investigate the associations between magnetic resonance imaging (MRI) measured T_2 (a measure of extra-cellular fluid volume) and strength of tibialis anterior (TA) in healthy participants and people on HD; 2. Evaluate the acute effect of extra- cellular fluid (ECF) reduction following HD on TA strength.

Methods:
Eighteen healthy and 17 participants with ESRD were recruited. The T_2 time constant was measured by MRI for the calf segment before and 6 - 12 hours after HD in ESRD, and on two occasions for the healthy participants. Maximum voluntary isometric contraction (MVIC) strength of TA was measured using a Biodex machine. The association between T_2 and TA MVIC strength was established using linear regression analysis. The acute effect of T_2 reduction by HD ultrafiltration on TA strength in HD group was calculated using paired sample t tests. Significance was set at $p<0.05$.

Results:
T_2 time constants were significantly associated with the peak MVIC of the TA before ($\beta = -0.41$, $p<0.05$) and after ($\beta= -0.45$, $p<0.05$) HD in both groups combined. Following HD, MVIC strength was reduced by 1.54 Nm ($p<0.05$) and T_2 of TA was shortened by 2.38 ms ($p<0.05$) in ESRD group.

Conclusions:
MRI-measured T_2 had a moderate negative correlation with TA muscle strength. However, following HD treatment, mean reduction in T_2 time constant was accompanied by reduction in TA muscle strength. This suggests acute dehydration following HD may contribute to deteriorating muscle/physical function in this population.

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-016

MFG-E8 REPROGRAMMING OF MACROPHAGES REDUCES INFLAMMASOME ACTIVATION IN RENAL OBSTRUCTION

Jean-Francois Cailhier (1,2), Marie-Joëlle Brissette (1,2), Patrick Laplante (1,2), Mathieu Latour (1)
(1) CHUM
(2) Institut du Cancer de Montréal

Background
Renal diseases are characterized by tubulo-interstitial fibrosis due to the loss of renal parenchymal cells. In the early phases of inflammation, macrophages induce apoptosis of renal parenchymal cells leading to renal fibrosis. Mediators released by the apoptotic cells play a crucial role in the modification of the renal microenvironment. We recently demonstrated that milk fat globule-epidermal growth factor E8 (MFG-E8) was released by apoptotic cells, resulting in a reduced pro-inflammatory cytokine production by macrophages.

Objectives
The present study is designed to study the role of MFG-E8 on the modulation of tissue damage and fibrosis in an unilateral ureteral obstruction (UUO) model.

Methods
C57BL/6 WT or MFG-E8 KO mice underwent UUO for 3, 7 and 14 days to evaluate the progression of renal damage and fibrosis. MFG-E8 (30µg/kg) was administered intra-peritoneally 1 day before and every 3 days subsequently. Kidneys were harvested and tissues were PAS stained to evaluate the obstructive associated damage evidences. We also used Sirius Red (collagen fibers) stain to evaluate fibrosis.

Results
MFG-E8 administration reduced kidney damage and fibrosis compared to control whereas its absence in the MFG-E8 KO mice was associated with a worse disease. Moreover, MFG-E8 administration was associated with a decreased expression of inflammasome activation in the kidney. Furthermore, administration of MFG-E8 stimulated macrophages prior to UUO confers protection by reducing inflammasome activation and renal injury. Moreover, both MFG-E8 and macrophage transfer were associated with an increased number of renal reparative macrophages (CD206).

Conclusions
We propose that the protective role of MFG-E8 is mediated through anti-inflammatory reprogramming of macrophages that decreases of inflammasome activation and attenuating tissue damage. These data provide valuable insight to identify MFG-E8 as a novel target for the regulation of renal inflammation and CKD progression.

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-017

LYSOSOMAL AGENTS AND MODULATION OF SPHINGOSINE TO TARGET RENAL CELL CARCINOMA

Sandra Turcotte, Maxime Cahuzac
Université de Moncton

Background.
Renal cell carcinomas (RCC) represent almost 80% of all kidney cancer cases. Alterations that inactivate the von Hippel-Lindau (VHL) tumor suppressor gene are frequent (up to 85% of cases) and early in renal carcinogenesis.The laboratory previously identified a novel small molecule, STF-62247, which is specifically toxic in VHL-deficient cells without affecting the viability of cells where VHL is functional. The cytotoxicity of this small molecule is associated with a modulation of autophagy and lysosomal membranes permeabilisation (LMP). One characteristic of LMP is acidification of the cytosol that can lead to cell death.

Objective.
In this study, we investigated if lysosomal ruptures observed in response to STF-62247 in VHL-deficient cells is linked to sphingolipids metabolism. *Methods.* Analyzes by qPCR and western blot have been used to measure the expression of different genes proteins coding for acid sphingomyelinase (SMPD1), neutral sphingomyelinase (SMPD2-4) and acid ceramidase (ASAH1). Moreover, viability has been evaluated in presence of cationic agents, V-ATPase inhibitors and sphingosine kinase (SPHK) inhibitors by XTT test. Enzymatic assays were also performed.

Results.
Our results demonstrated that the expression of SMPD1 and ASAH1 increase significantly in VHL-deficient cells in response to STF-62247. The inhibitors of V-ATPase and SPHK2 demonstrated specificity for VHL-deficient cells. In addition, our results showed that the STF-62247 decreased SPHK2 enzyme activity, which might cause an accumulation of sphingosine in lysosomes and breakdown of lysosomal membranes. *Conclusion.* Altogether, our data suggest that an accumulation of sphingosine could be implicated in selective toxicity induced by the STF-62247 or other lysosomal inhibitors in VHL-deficient cells. This work revealed a role for VHL in autophagy and lysosomal degradation that could be exploited in a therapeutic approach to treat RCC with inactivation for VHL.

Funding : ST is a New investigator from the KRESCENT program funded by CIHR and Cancer Research Society.

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-018

EMERGENCY ROOM UTILIZATION BY DIALYSIS PATIENTS: A POPULATION BASED STUDY

Claudio Rigatto (1,2), Trevor Strome (3), Roberto Lobato de Faria (3), Amanda Eng (1), Bing Hu (3), Manish Sood (4), Mauro Verrelli (1), Brett Hiebert (1), Navdeep Tangri (1,2), Paul Komenda (1,2)

(1) University of Manitoba
(2) Seven Oaks Hospital Research Centre
(3) WRHA
(4) University of Ottawa

Background*:*
Patients with kidney failure are frail and have high rates of cardiovascular and infectious comorbidities. As a result, they are heavy users of non-dialysis acute health services such as the emergency department (ED). Despite this, precise population based data on rates and patterns of ED visits by dialysis patients are sparse.

Objective*:*
To determine rates and patterns of ED utilization by adult dialysis patients vs. the adult general population

Methods*:*
We linked two large regional databases, the Manitoba Renal Program Patient Registry and the Winnipeg Regional Emergency Program ADT system. Data were analyzed for the years 2000-2009. Poisson Regression was used to compare rates. ***Results:*** Over the study period, the linked dataset comprised >1.9 million visits in >1.2 million non- dialysis patients, and 10,180 visits in 3558 dialysis patients. Our key findings were 1) Age and Sex adjusted rates of ER visits were 8.5X higher among dialysis patients [153 vs 18 visits per 100 patient-years, $p<0.001$), with negligible variation year to year over the study period; 2) Rate of ER visits were 25% higher on Mondays and Tuesdays overall; this "post-weekend" risk phenomenon was more pronounced in dialysis patients vs. the general population($p<0.001$ for interaction); 3) among dialysis patients, ER visits were 8X higher during the two weeks before and after initiation of dialysis, reflecting a period of heightened vulnerability for patients with kidney disease.
Limitations*:* Data on comorbidities and disposition were not available and will require additional data linkages

Conclusions:
Our population based rates of ED utilization will help health administrators predict the "collateral" impact of dialysis units on the health system. Strategies to mitigate the high risk of ED utilization "post weekend" and around the time of transition to dialysis are needed and should be a focus of future research.

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-019

ROBO RECEPTOR RATIO REGULATES THE ANGIOGENIC EFFECT OF SLIT2 IN THE DIABETIC KIDNEY

Ahmad Sidiqi (1), Stephen Szeto (1), Mingliang Lu (1), Lauren Chan (1), Krystale De Freitas (1), Lisa Robinson (2), Darren Yuen (1)
(1) St. Michael's Hospital
(2) The Hospital for Sick Children

Background: A hallmark of diabetes, the leading cause of kidney failure, is glomerular endothelial cell (GEC) injury, where pathological angiogenesis contributes to hyperfiltration, a common feature linked to progression of renal injury. No clinically available therapies safely target this process. Slit2 has emerged as a regulator of endothelial function, eliciting either pro- or anti-angiogenic effects through its Robo1 and Robo4 receptors respectively.

Objectives: Whether Slit2-Robo signalling regulates angiogenic GEC responses in diabetes *in vitro* and *in vivo*.

Methods: GEC expression of Slit2, Robo1, and Robo4 was examined in normal (NG) or high glucose (HG) conditions *in vitro*, and *in vivo* in two models of diabetic nephropathy (db/db mice, streptozotocin (STZ)-induced diabetic Wistar rats). GEC responsiveness to VEGF in angiogenesis assays was examined in both NG and HG conditions, and following Robo1 knockdown. The effects of Robo4 deficiency (Robo4 knockout mice) and Slit2 administration (2µg thrice weekly i.p. injections) on diabetes-induced glomerular angiogenesis and hyperfiltration were also analyzed.

Results: GEC grown in HG medium expressed lower levels of Slit2 and Robo4, but not Robo1, and had greater response to VEGF, while Robo1 knockdown inhibited VEGF-induced tube formation and migration. While healthy GEC expressed high levels of Robo4 and low levels of Robo1 *in vivo*, Robo4 levels fell while Robo1 levels remained unchanged, leading to a reduction in Robo4:Robo1 ratio. Slit2 levels also fell in rat glomeruli 3 weeks after STZ-diabetes induction. Four weeks post-STZ-induced diabetes, Robo4 KO mice kidneys demonstrated increased GEC density compared with WT littermates. These changes in expression of Slit2-Robo signalling components were accompanied by STZ-diabetes-induced glomerular capillary growth and hyperfiltration, which were attenuated by exogenous Slit2 administration.

Conclusions: Our observations suggest that diabetic glomerular angiogenesis is promoted by a shift in Slit2-Robo signalling, favouring a reduction in anti-angiogenic Slit2-Robo4 activity which can be overcome with Slit2 therapy.

AGM 2015
MONTREAL, QC

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-020

AN ECONOMIC ASSESSMENT MODEL OF RURAL AND REMOTE SATELLITE HEMODIALYSIS UNITS

Thomas Ferguson, James Zacharias, Simon Walker, David Collister, Claudio Rigatto, Navdeep Tangri, Paul Komenda
University of Manitoba

Background:
Kidney Failure is epidemic in many remote communities in Canada. In-centre hemodialysis is provided within these settings in satellite hemodialysis units. The key cost drivers of this program have not been fully described. Such information is important in informing the design of programs aimed at optimizing efficiency in providing dialysis and preventative chronic kidney disease care in remote communities.

Objectives:
Describe the costs of providing dialysis in rural and remote satellite hemodialysis units.

Methods:
We constructed a cost model based on data derived from 16 of Manitoba, Canada's remote satellite units. We included all costs for operation of the unit, transportation, treatment, and capital costs. All costs were presented in 2013 Canadian dollars.

Results:
The annual per-patient cost of providing hemodialysis in the satellite units ranged from $80,545 to $216,885 per patient, per year. The median per patient, per year cost was $101,947 (IQR $87,519 - $121,383). Primary cost drivers were capital costs related to construction, human resource expenses, and expenses for return to tertiary care centres for health care. Costs related to transport considerably increased estimates in units that required plane or helicopter transfers.

Conclusions:
Satellite hemodialysis units in remote areas are more expensive on a per-patient basis than hospital hemodialysis and satellite hemodialysis available in urban areas. In some rural, remote locations, better value for money may reside in local surveillance and prevention programs in addition support for home dialysis therapies over construction of new satellite hemodialysis units.

AGM 2015
MONTREAL, QC

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-021 - Not authorized for posting

Poster will be available on the board only

AGM 2015
MONTREAL, QC

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-022

DONORS' AND RECIPIENTS' VIEWS ON ALTRUISTIC UNBALANCED PAIRED KIDNEY EXCHANGE

Marie-Chantal Fortin, Céline Durand, Julie Allard
Centre de Recherche du CHUM

Background:
Kidney transplant recipients in the O blood group are at a disadvantage when it comes to exchange programs (EPs). A way to remedy this situation is through altruistic unbalanced paired kidney exchange (AUPKE), in which a compatible pair is invited to participate in an EP. The aim of this study was to gather empirical data about donors' and recipients' views on AUPKE.

Methods:
Seventeen living, past and actual, donors and recipients took part in semi-structured interviews between 10/2013 and 12/2014. The content of these interviews was analyzed using the qualitative data analysis method described by Miles and Huberman.

Results:
Although most of the respondents were in favour of AUPKE, only three said they would be willing to participate in such a program, nine would consider this option, and five would refuse it. The respondents raised three important issues: 1) the absence of an emotional relationship between recipient and donor; 2) the delay in obtaining a kidney; and 3) the quality of the organ received and immunologic compatibility. Some respondents felt it was important to donate the organ directly to a loved one. In terms of the time required to find a match, some respondents stressed that compatible pairs should not be disadvantaged by their participation in an AUPKE program. They did not want the health of the recipient to be compromised by too long a wait. Organ quality and immunologic compatibility were also a concern. Respondents felt it was important that the organ received be of a similar or better quality than that of the intended donor, with better immunologic compatibility.

Discussion:
Few donors and recipients who participated in this study were willing to participate in AUPKE. Further studies are needed before developing a national strategy to recruit compatible pairs in EPs.

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-023

OVEREXPRESSION OF HETEROGENEOUS NUCLEAR RIBONUCLEOPROTEIN F ATTENUATES TUBULAR APOPTOSIS AND TUBULOINTERSTITIAL FIBROSIS IN TYPE 2 DIABETIC MICE

John Chan (1), Chao-Sheng Lo (1), Yixuan Shi (1), Isabelle Chenier (1), Jean Ethier (1), Jean-Baptist Lattouf (1), Janos Filep (2), Julie Ingelfinger (3), Shao-Ling Zhang (1)
(1) Université de Montréal, CRCHUM
(2) Université de Montréal, Maisonneuve-Rosemont Hospital
(3) Mass Gen Hosp

Background.
We investigated the impact of overexpression of heterogeneous nuclear ribonucleoprotein F (hnRNP F, a transcription factor) on renal angiotensinogen and transforming growth factor-beta 1 (TGF-β1) expression, tubular apoptosis and tubulointerstitial fibrosis in type 2 diabetic db/db mice.

Methods.
We studied db/db transgenic (Tg) mice specifically overexpressing hnRNP F in their renal proximal tubular cells (RPTCs). Plasma glucose, systolic blood pressure (SBP) and albuminuria were monitored weekly in adult male db/db and db/db hnRNP F-Tg mice and lean db/m littermates from 10 to 20 weeks of age. Kidneys were processed for histology and apoptosis studies. Gene and protein expression in renal proximal tubules (RPT) were evaluated by real time-qPCR and Western blotting, respectively. Urinary angiotensin 1-7 (Ang 1-7) and angiotensin II (Ang II) levels were quantified by ELISA. Rat immortalized RPTCs stably transfected with hnRNP F were also studied. Human non-diabetic and type 2 diabetic kidneys were also studied by immunohistochemistry.

Results.
db/db mice developed hyperglycemia, elevated SBP, renal hypertrophy and albuminuria at week 20, while SBP and renal hypertrophy but not hyperglycemia and albuminuria were attenuated in db/db hnRNP F-Tg mice. Tubular apoptosis, expression of RPT Agt, TGF-β1, collagen IV, fibronectin, Bax and caspase-3 and urinary Ang II levels were significantly increased in db/db mice but not in db/db hnRNP F-Tg mice. In contrast, Ace2 expression and urinary Ang I-7 levels were significantly decreased in db/db mice and normalized in db/db hnRNP F-Tg mice. Overexpression of hnRNP F attenuated high glucose-induced apoptosis and expression of pro-apoptotic and fibrotic genes in rat RPTCs. Finally, human diabetic kidneys exhibited higher levels of Agt and TGF-β1 and lower levels of hnRNP F and Ace2 than non-diabetic kidneys.

Conclusion.
Overexpression of hnRNP F in renal proximal tubular cells is associated with attenuation of tubular apoptosis and tubulointerstitial fibrosis in mice with type 2diabetes.

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-024

NEW ONSET DIABETES MELLITUS AFTER TRANSPLANTATION IN RENAL ALLOGRAFT RECIPIENTS

Sachin Kodgire (1), Santosh Varughese (2), Gopal Basu (2), Anjali Mohapatra (2), Tamilarasi Veerasamy (2)
(1) Toronto General Hospital, University of Toronto
(2) Christian Medical College

Introduction and Aim:
New Onset Diabetes Mellitus After Transplant (NODAT) is a common complication after renal transplantation. Different studies have shown varied incidences. Aim of this study was to identify the risk factors and complications associated with NODAT.

Methods:
Renal allograft recipients who underwent renal transplantation from January 2006 to December 2009 were retrospectively studied. NODAT patients were compared with those without NODAT for various associations.

Results:
There were 311 renal allograft recipients with a mean follow-up of 27.4±14.6 months and mean age of 35.8±11.7 years. 35(11.25%) patients had pre-transplant diabetes mellitus. In the remaining 276 patients, 79(28.6%) patients developed NODAT. The majority (74%) developed NODAT within 3 months post-transplant and were referred to have 'Early NODAT'. Those who developed NODAT after 3 months of transplantation were referred to have 'Late NODAT'. Higher recipient age, increased body weight & high BMI at transplant, use of Tacrolimus compared to Cyclosporin and higher time average exposure to Tacrolimus were significantly associated with development of NODAT. Tacrolimus compared to Cyclosporin use and higher time average exposure to Tacrolimus were significantly associated with NODAT. UTI and graft pyelonephritis were significantly higher in NODAT. Graft and patient survival were comparable in both groups. Early NODAT group had weight loss before diagnosis, increased use of Basiliximab and insulin. Late NODAT group had weight gain before diagnosis, increased steroid exposure and decreased insulin use. So this may suggest that early NODAT is related to B-cell dysfunction and Late NODAT is related to insulin resistance.

Conclusions:
Incidence of NODAT in our cohort is 28.6%. Recipient age, increased weight & BMI at transplant, use of Tacrolimus and higher tacrolimus exposure are significant risk factors for NODAT. UTI and graft pyelonephritis are more common in these patients. Early NODAT and late NODAT patients are phenotypically different suggesting
different pathogenic mechanisms.

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-025

THE ASSOCIATION BETWEEN CHANGES IN ALBUMINURIA AND ALL-CAUSE MORTALITY IN PATIENTS WITH TYPE 2 DIABETES IN THE ADVANCE (ACTION IN DIABETES AND VASCULAR DISEASE: PRETERAX AND DIAMICRON-MR CONTROLLED EVALUATION) TRIAL

Min Jun (1,2), Vlado Perkovic (2), Mark Woodward (2), Hiddo J Lambers Heerspink (3), Tanvir Chowdhury Turin (1), John Chalmers (2), Meg J Jardine (2), Braden J Manns (1), Marcello Tonelli (1), Brenda R Hemmelgarn (1)
(1) University of Calgary
(2) The George Institute for Global Health
(3) University of Groningen

Background
Whether change in albuminuria modifies the risk of clinical outcomes is uncertain. Determining this association is important as albuminuria change may have useful prognostic value in cardiovascular and kidney disease progression.

Objective
To assess the association between change in urinary albumin-to-creatinine ratio (UACR) and the risk of all-cause mortality in the ADVANCE trial, which investigated the effects of blood pressure and intensive glucose-lowering in type-2 diabetes.

Methods
We defined UACR change (baseline to 2 years) as ≥25% decrease, <25% decrease to <25% increase (minor change; reference), and ≥25% increase. Follow-up for mortality ascertainment commenced at the second UACR measurement. We used Cox regression models to estimate the hazard ratio (HR) for all-cause mortality, after adjustment for demographics, ADVANCE randomization group, comorbidities, laboratory measurements (including baseline UACR), and medication use.

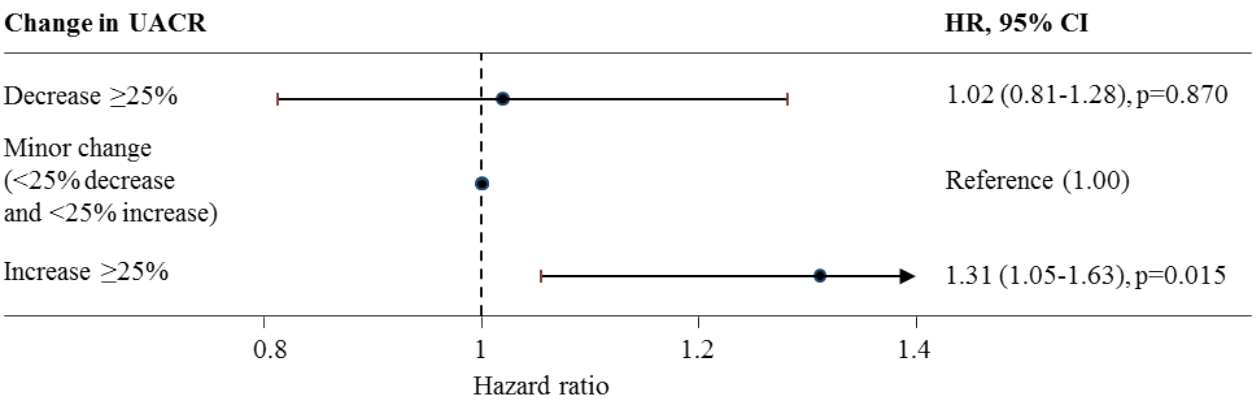
Results
9193 patients were included of whom 520 (5.7%) died over a mean follow-up of 2.9 years. 23% of patients experienced a UACR decrease of ≥25%, 51% experienced a minor change, and 26% experienced an increase of ≥25% (baseline to 2 years). An increase of ≥25% in UACR was associated with 31% higher mortality when compared to a minor change (Figure 1, HR 1.31, 95% CI:1.05-1.63). A UACR decrease of ≥25% was not associated with the risk of death when compared to those who experienced a minor change.

Conclusions
In type-2 diabetes patients, ≥25% increase in albuminuria was associated with higher mortality. Our results suggest that a substantial change in albuminuria may be a potential prognostic marker for death.

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

P-025

Figure 1 Adjusted HRs (95% CI) of UACR change from baseline to 2 years for all-cause mortality



AGM 2015
MONTREAL, QC

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-026

INSULIN RESISTANCE AND ANGIOTENSION-DEPENDENT ARTERIAL STIFFNESS IN HEALTHY WOMEN AND MEN

Luke Rannelli, Sharanya Ramesh, Jennifer MacRae, Michelle Mann, Brenda Hemmelgarn, Rabi Doreen, Sofia Ahmed
University of Calgary

Background:
Insulin resistance is associated with accelerated cardiovascular disease in patients with chronic kidney disease, and confers an increased cardiovascular risk in women compared to men, though the pathophysiology is unclear.

Objective:
We sought to evaluate the association between insulin resistance and arterial stiffness, a validated marker of cardiovascular risk, in healthy women and men.

Methods:
27 female and 21 male (mean age 36.5 year old) healthy, normotensive, non-diabetic, non-obese subjects were studied in a fasting high-salt state. Measures of insulin resistance (fasting insulin, hemoglobin A1c (HbA1c), homeostatic model assessment (HOMA-IR) and the quantitative insulin sensitivity check index (QUICKI) were determined for each subject. Arterial stiffness, measured as aortic augmentation index (AIx) and pulse wave velocity (PWV), was measured at baseline and in response to 60 minutes of angiotension II (AngII) infusion. The primary outcome was the arterial stiffness response to AngII as a function of insulin resistance, stratified by sex.

Results:
All measures of insulin resistance were within normal range for both sexes. There was no association between any measure of insulin resistance and baseline arterial stiffness in women or men. However, sex differences were observed in the arterial stiffness response to AngII challenge. There was a positive trend between insulin levels (p=0.023) and HOMA-IR (p=0.031) with the AIx response to AngII infusion in women, but not in men (insulin: p=0.068; HOMA-IR: p=0.078; all values vs response in women). No associations between measures of insulin resistance and measures of PWV were observed in either women or men.

Conclusion:
In this healthy population we found an association between increasing insulin resistance, and greater angiotensin-dependent arterial sensitivity in women but not in men. Further studies investigating the role of insulin resistance in mediating kidney and cardiovascular disease in women are required.

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-027 - Withdrawn

AGM 2015
MONTREAL, QC

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-028

BISPHOSPHONATES AND THE RISK OF FRACTURES AFTER RENAL TRANSPLANTATION: A RETROSPECTIVE STUDY

Fabrice Mac-Way, Ioan-Andrei Iliuta, Sacha De Serres, Isabelle Houde, Mohsen Agharazii, David Simonyan
Laval University

Background:
Bisphosphonates (Bps) are commonly used to prevent bone loss in renal transplanted patients. However, it is still unclear whether the use of Bps is associated with reduced fracture risk or not in this population. The objective of this study was to evaluate the effect of oral Bps on fractures in renal graft recipients.

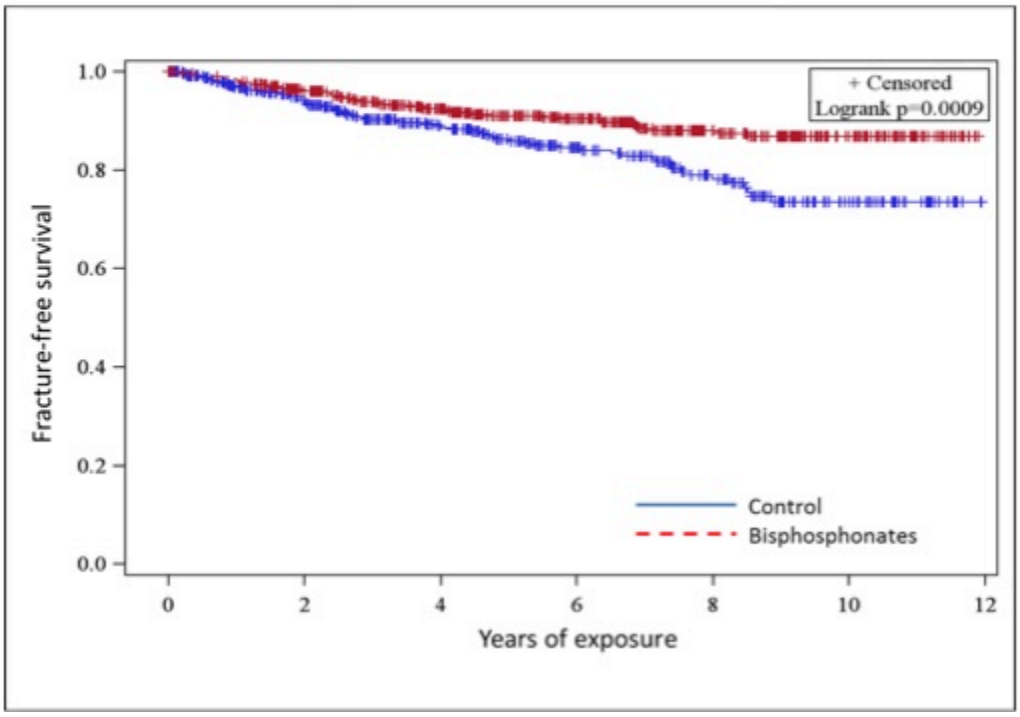
Methods:
A retrospective and comparative study between renal transplant recipients treated with Bps (2001 to 2013) versus no Bps (1987 to 1999) was conducted at l'Hôtel-Dieu de Québec hospital (Quebec, Canada). The study length time was restricted to 12 years to allow comparable exposition time from transplantation between groups. Biochemical, demographic data, comorbidities and time to first fracture were collected. Adjusted multivariate regression and a propensity score analysis were performed.

Results:
1104 patients were included in this study: 596 in the Bps group and 508 in the group without Bps. There were 57 fractures in the Bps group (10 %) versus 134 fractures (26%) in the no Bps group (p=0.005). When adjusted for age, sex, weight, cause of renal failure, dialysis vintage, diabetes, donor characteristics, previous dialysis modality and total corticosteroid doses, the use of Bps was associated with a reduced risk of fractures (Figure 1). Propensity score analysis by matching, stratification by quintiles and logistic regression confirmed our results.

Conclusions:
The use of Bps reduces the risk of first fractures in renal transplanted patients. As opposed to dialysis vintage, corticosteroid use was not associated with increased risk of fractures.

P-028

Figure 1. Bisphosphonate use is associated with a reduced risk of fractures



Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-029 - Withdrawn

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-030

COGNITIVE IMPAIRMENT IN ADVANCED CHRONIC KIDNEY DISEASE: FINDINGS FROM THE CANFIT STUDY

Ranveer Brar (1), Simon Walker (1), Brett Hiebert (2), Frederick Eng (1), Paul Komenda (1), Claudio Riggato (1), Bhanu Prasad (4), Clara Bohm (3), Rakesh Arora (2), Leroy Storsley (3), Navdeep Tangri (1)
(1) Seven Oaks General Hospital
(2) St. Boniface General Hospital
(3) Health Sciences Center
(4) Regina General Hospital

Background:
Chronic Kidney Disease (CKD) disproportionately affects the elderly, and is associated with multiple comorbid conditions putting them at risk of developing cognitive impairment.

Objectives:
The purpose of this study was to describe the prevalence of cognitive impairment in patients with advanced CKD (eGFR ≤ 30ml/min).

Methods:
We approached all patients with advanced CKD who attended an interprofessional clinic at four tertiary care centers for enrollment in our study. We excluded patients who did not speak English or were unable to provide informed consent. We collected demographic variables, physical examination measurements, laboratory values, and performed an assessment of cognitive function using the Montreal Cognitive Assessment (MoCA).

Results:
We studied 299 patients. Their median age was 69 years (Interquartile Range [IQR] = 58.0 - 79.0), and 115 patients were female (39.5%). The mean eGFR was 19.0 mL/min/1.73m2. 216 patients (72.2%) scored < 26 on the MoCA and were thus defined as mildly cognitively impaired. In particular, the memory/recall, visual/executive and language domains were impaired in > 60 % of the participants. Older age, higher pulse pressure, and presence of pre-existing cardio/cerebrovascular disease were associated with cognitive impairment.
Conclusions: Patients with advanced CKD have a high burden of cognitive impairment. Vascular risk factors appear to be associated with worsening cognition. Further studies on the pathophysiology of cognitive decline and its impact on patient decision making and outcomes are needed.

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-031

PODOCYTE-SPECIFIC HYPER-ACTIVATION OF RAC1 INDUCES GLOMERULOSCLEROSIS AND NEPHROTIC SYNDROME

Richard Robins (1), Cindy Baldwin (1), Lamine Aoudjit (1), Indra Gupta (2), Tomoko Takano (1)
(1) McGill University
(2) Montreal Children's Hospital Research Institute

Background:
Rac1 is a member of the Rho-family of small GTPases that play critical roles in regulation of actin cytoskeletal dynamics. Data from clinical studies and animal models demonstrate that increases in Rac1 activity within podocytes contribute to the pathogenesis of nephrotic syndrome (NS).

Objectives:
To determine the outcomes of podocyte-specific Rac1 activation. We hypothesize that this will induce podocyte injury, foot process effacement and NS.

Methods:
Transgenic mice carrying the tetracycline-inducible constitutively active mutant of Rac1 (L61, CA-Rac1, Flag-tagged) were bred with mice with the podocin-driven reverse tetracycline trans-activator to generate double transgenic mice (DTG). Mice aged 8-12 weeks were treated with doxycycline (Dox). Proteinuria was assessed by the albumin/creatinine ratio. Kidneys were evaluated histologically using light and immunofluorescence microscopy. Glomerular lysates were used for immunoblotting.

Results:
After 5 days of Dox treatment, 16/26 DTG mice demonstrated heavy proteinuria which persisted for the duration of treatment (1 month). In DTG mice treated with Dox, FLAG staining was confirmed in podocytes by co-staining with synaptopodin. By light microscopy, 4/5 proteinuric DTG mice displayed severe glomerulosclerosis. Quantification of glomerulosclerosis with scores (normal=1 and global sclerosis=4) nonetheless showed a significant increase of glomerulosclerosis in DTG mice (1.01 ± 0.07 for control vs. 2.22 ± 0.35 for DTG; 15 glomeruli per mouse, 5 mice each, $p<0.05$). Podocyte number counted by WT1+ nuclei was significantly decreased in DTG (10.4 ± 0.2 for control vs. 5.6 ± 0.46 for DTG; 10 glomeruli per mouse, 4-7 mice , $p<0.05$). DTG mice showed synaptopodin loss by immunofluorescence staining and immunobloting. In contrast, the podocyte injury marker, phospho-p38, was increased in glomerlar lysates of DTG mice.

Conclusions:
Podocyte-specific hyper-activation of Rac1 caused rapid and, unlike previously reported, persistent proteinuria accompanied by podocyte loss and glomerulosclerosis. Hyper-activation of Rac1 may contribute to the pathogenesis of primary or secondary NS.

AGM 2015
MONTREAL, QC

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-032

PERCEPTIONS REGARDING DEATH AND DYING OF INDIVIDUALS WITH CHRONIC KIDNEY DISEASE

Kara Schick-Makaroff (1), Anita Molzahn (1), Laurene Sheilds (2), Kelli Stajduhar (2), Rosanne Beuthin (3)
(1) University of Alberta
(2) University of Victoria
(3) Island Health, Professional Practice

Background:
A culture of "death denial" exists in dialysis facilities regardless of relatively high mortality statistics among people living with chronic kidney disease (CKD). Despite availability of end-of-life guidelines, there has been little research regarding the perceptions of individuals living with CKD.

Objective:
The objective of this research was to explore experiences and perceptions that relate to death and dying among individuals with CKD. Our research question was, "How do people with CKD narrate death and dying?"

Methods:
The methodology for this study was qualitative, specifically narrative inquiry. It was informed by social constructionism. In-depth interviews were conducted four times, over three years, with fourteen participants. They were diverse in age (43-83), gender (ten male, four female), treatment modality (three with transplants, nine on hemodialysis, two with stage 4 CKD), location (rural and urban), time since diagnosis (1-50 yrs; median= 6 years), prognosis (from conservative management, to dialysis, transplantation, and palliative care), and perception of life-threat. One participant was HIV positive and five also had cancer. Three participants died over the course of the study.

Results:
Four themes relating to death and dying emerged from the data. First, participants were aware of death as a possible consequence of CKD, and they often talked about how their health care providers were uncomfortable with the topic. Second, nearly all described "close calls" with death. Third, many described situations where they considered "suicide" or withdrawal from dialysis. Fourth, they told stories of preparing for death while living life to the fullest extent possible.

Conclusions: Despite awareness of and comfort in discussing death and dying, participants perceived that their health care providers experienced considerable discomfort in discussing the topic. A better understanding of the perceptions of people living with CKD and their perspectives of living and dying could facilitate patient-centred care.

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-033

CITRATE VERSUS ACETATE DIALYSATE ON INTRADIALYTIC HEPARIN DOSE: A DOUBLE BLIND RANDOMIZED CROSSOVER STUDY

Kelvin Leung (1), Pietro Ravani (1), Davina Tai (2), Robert Quinn (1), Nairne Scott-Douglas (1), Jennifer MacRae (1)
(1) University of Calgary
(2) University of Saskatchewan

Background:
Citrate dialysate (CD) has an anticoagulant effect which may lead to a reduced cumulative heparin dose (CHD) as compared to standard acetate dialysate (AD).

Methods:
We performed a randomized double-blind, crossover trial in maintenance HD patients using heparin for anticoagulation to determine if CD use is associated with a 30% lower CHD than AD. Heparin dose was adjusted with a heparin reduction protocol during a two-week, run-in phase. Patients who remained on heparin were randomized to two weeks of CD or AD. Patients underwent a 68h washout before crossing over. The primary outcome was CHD per HD session; secondary outcomes included changes in serum calcium, magnesium, and bicarbonate; QTc interval; and hemodynamic stability.

Results:
Twenty-five patients entered the run-in phase, five achieved heparin free status, the remaining 20 were randomized; 19 completed the study. The mean CHD per session at baseline was 3809±593 units and was reduced by 749±1069units ($p=0.16$), a 19.7% reduction, to 3060±933 units the end of the run-in phase. At study end, CHD per session in the AD group was 2565±1085 units compared to 2410±1177 units in the CD group. This corresponded to a reduction of 785±1356 units in CHD with AD, a 23.4% reduction, and 703±1636 units with CD, a 21.1% reduction ($p>0.05$, Figure 1). Ionized calcium decreased by 0.10mmol/L ($P<0.01$) with CD; no differences in other secondary outcomes.

Conclusion:
CD is a safe alternative to AD, but the data does not support our study hypothesis of a reduction in the CHD.

P-033

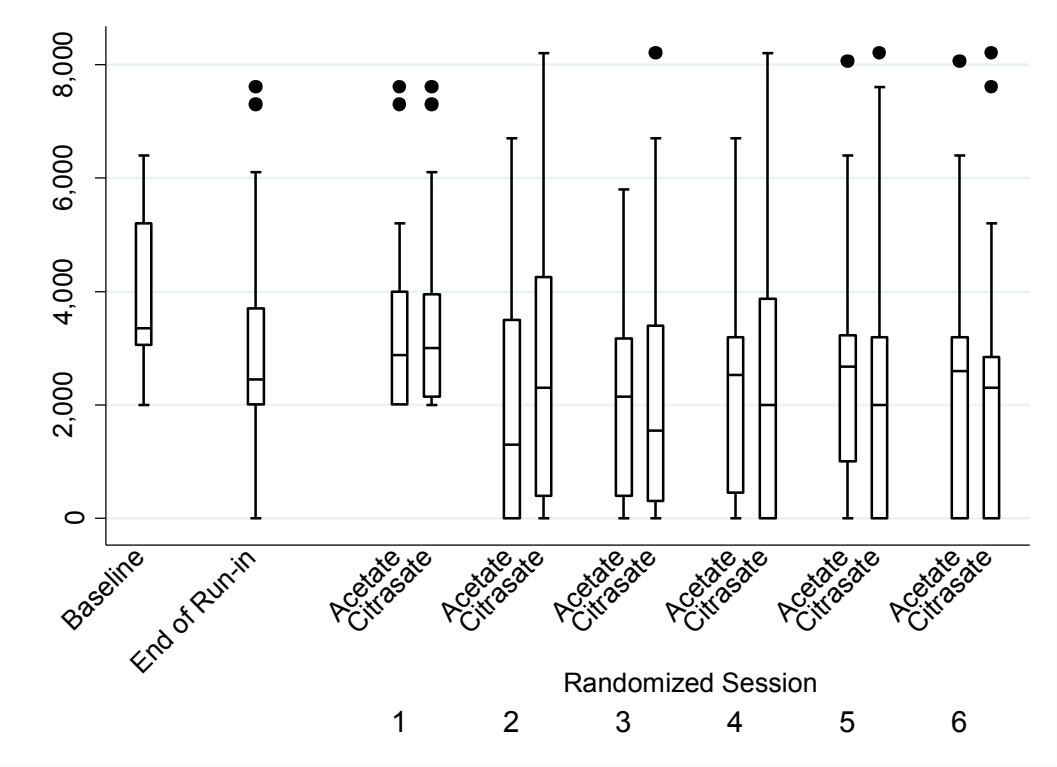


Figure 1: Cumulative Heparin Dose During Study Period

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-034

ASSESSING THE EXTENT TO WHICH CLINICAL RESEARCH IN DIALYSIS IS CONSISTENT WITH RESEARCH PRIORITIES IDENTIFIED BY PATIENTS ON DIALYSIS

Min Jun (1), Braden J Manns (1), Andreas Laupacis (2), Liam Manns (1), Bhavdeep Rehal (1), Sally Crowe (3), Brenda R Hemmelgarn (1)
(1) University of Calgary
(2) Li Ka Shing Knowledge Institute
(3) Oxford, United Kingdom

Background
There is growing recognition that research focusing on priorities and outcomes considered relevant to patients is important.

Objective
To assess the extent to which recent research in patients on or nearing dialysis is consistent with the top-10 research priorities identified by patients on dialysis, caregivers, and clinicians.

Methods
We systematically searched the medical literature, international randomized controlled trial (RCT) registries (2010-2013), and national government and kidney research funders of Canada, US, UK, and Australia, to identify published original clinical studies, registered RCTs, and funded studies (all designs of clinical studies), respectively, of adults on or nearing dialysis. All studies were grouped based on their correspondence with the top-10 dialysis research priorities (DRP) identified through a national Canadian survey and an in-person workshop of patients on or nearing dialysis, caregivers, and clinicians.

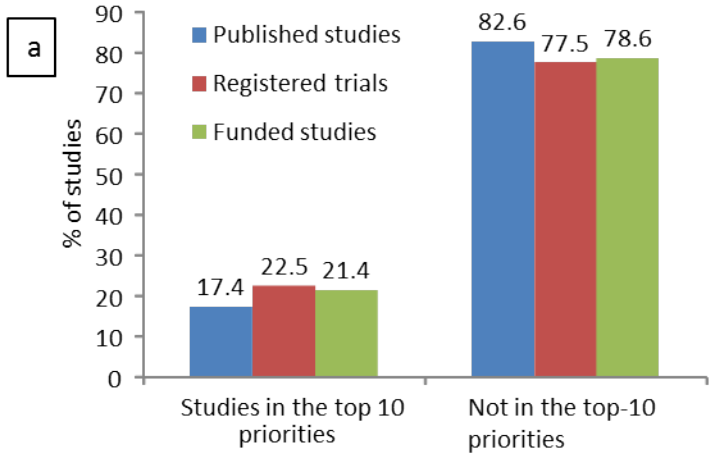
Results
The search yielded 1116 published clinical studies, 315 RCTs, and 70 funded studies. The majority did not address the top-10 dialysis research priorities; 194 articles (17%), 71 RCTs (23%), and 15 funded studies (21%), respectively, were relevant to the DRP (Figure 1a). Four of the top-10 priorities, (itching, increasing access to kidney transplantation, improving the psychosocial impact of kidney failure, assessing the impact of dietary restriction) received virtually no attention (Figure 1b).

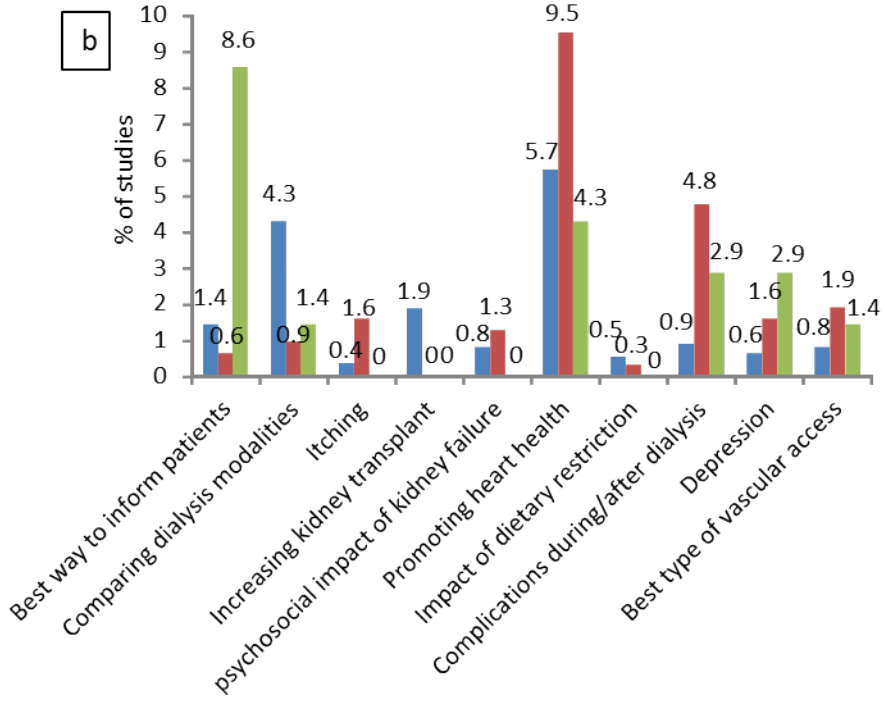
Conclusions
The majority of recently published or ongoing clinical research in patients on or nearing dialysis is in areas outside the top research priorities identified by patients, caregivers, and clinicians. Future dialysis studies should consider including the identified patient-centred research priorities in their design.

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

P-034

Figure 1 (a) The proportion of eligible studies, by information source, identified as addressing one of the top-10 research priorities compared to studies which did not assess one of the top-10 priorities, (b) Distribution of studies addressing one of the top-10 research priorities, by the top-10 dialysis patient priorities





Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-035

ORAL TREATMENT WITH PBI-4050 REDUCES KIDNEY FIBROSIS

Lyne Gagnon, Martin Leduc, Brigitte Grouix, Lilianne Geerts, François Sarra-Bournet, William Gagnon, Alexandra Felton, Kathy Hince, Mikaël Tremblay, Liette Gervais, Marie-Pier Cloutier, Frank Cesari, John Moran, Pierre Laurin
ProMetic BioSciences Inc

Background:
PBI-4050, a novel first-in-class orally active compound which is currently in clinical phase Ib/II in CKD patients, displays antifibrotic activities via a novel mechanism of action. In a double-blind ascending dose (400 to 2400 mg) in healthy volunteers, PBI-4050 was found to be safe and well tolerated up to 2400 mg without any significant adverse effects. Similarly, PBI-4050 was well tolerated in CKD patients with no SAEs observed at 800 mg.

Objectives:
Investigate the anti-fibrotic activity of PBI-4050.

Methods:
mRNA expression was investigated on TGF-β1-stimulated HK-2 and NHDF cells as well as in mouse and rat kidney tissue.

Results:
PBI-4050 reduces fibrosis via the regulation of macrophage, fibroblast and epithelial cells. In a pro-fibrotic phase, PBI-4050 plays a regulatory role on macrophages and T cells by promoting Type 1 anti-fibrotic cytokine production resulting in a reduction of the over-expression or over-production of TGF-β, MCP-1, CTGF, IL-6 and IL-23. In TGF-β-stimulated human fibroblast (NHDF), PBI-4050 reduces the expression of pro-fibrotic cytokines and growth factors: IL-6, MCP-1, CTGF, IL-5, endothelin 1 (EDN1), EGF, PDGFα, VEGFα, TGF-β2; and of remodeling enzymes: LOX, MMP13 and TIMP3. In TGF-β-stimulated human renal epithelial cells (HK-2), PBI-4050 reduces the expression of epithelial-to-mesenchymal transition markers: collagen III, MMP2, MMP9 and TGF-β1-2 and 3; of remodeling enzymes: LOX, MMP1, MMP2, MMP9, MMP13 and TIMP3; and of growth factors: CTGF, EDN1, EGF, PDGFβ.

PBI-4050 has demonstrated strong anti-fibrotic activities, improved kidney function, and reduced proteinuria in different renal fibrotic models: chronic kidney disease/end stage renal disease (5/6-nephrectomized rat), acute kidney injury (doxorubicin-induced nephrotoxicity), renal ischemia, and diabetic kidney disease (db/db and db/db eNOS-/- mice).

Conclusions:
Taken together, these pre-clinical results suggest that PBI-4050 offers the potential as a novel therapy for the treatment of kidney fibrosis.

AGM 2015
MONTREAL, QC

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-036

ORAL TREATMENT WITH PBI-4547, A NOVEL FIRST-IN-CLASS ANTI-DIABETIC AND ANTI-FIBROTIC COMPOUND, REDUCES INSULIN RESISTANCE AND IMPROVES GLOMERULAR FUNCTION IN THE DIABETIC DB/DB MOUSE MODEL

Lyne Gagnon, François Sarra-Bournet, Kathy Hince, Liette Gervais, Alexandra Felton, Mikaël Tremblay, Marie-Pier Cloutier, Shaun Abbott, Jean-Simon Duceppe, Boulos Zacharie, Pierre Laurin, Brigitte Grouix
ProMetic BioSciences Inc

Introduction:
Diabetic nephropathy is one of the most common complications of diabetes and a leading cause of end-stage renal disease.

Objectives:
Investigate the effect of PBI-4547 on insulin resistance, glomerular function and structure, and markers of inflammation/fibrosis in the uninephrectomized (NX) diabetic (db/db) mouse model.

Methods:
Total nephrectomy of the right kidney was performed on day 0 and animals were treated with vehicle or PBI-4547 (10 and 50 mg/kg, oral once a day) from day 1 through 103. Kidney function (GFR), mesangial lesions, and alteration of gene expression in kidney tissue were examined.

Results:
Blood glucose was significantly increased in NX-db/db mice (45 ng/ml) compared to NX-C57BL/6 mice (less than 10 ng/ml), but reduced, in a dose dependent manner, to the normal level in PBI-4547-treated NX-db/db mice (4-7 ng/ml). Insulin secretion level was reduced overtime in the NX-db/db mice, this insulin secretion loss was reversed with the treatment with PBI-4547. Glucose/insulin ratio was significantly reduced to normal level with PBI-4547 treatment. Kidney function assessed by GFR (inulin clearance) was significantly reduced in NX-db/db mice, and was significantly increased by treatment with PBI-4547. As shown by periodic acid-Schiff staining, NX-db/db mice had larger glomeruli with increased mesangial matrix, while mesangial lesions scores were significantly reduced with treatment with PBI-4547. In addition, mRNA expression of markers of inflammation, fibrosis, oxidative stress, and extracellular matrix remodeling (MCP-1, IL-6, collagen I, MMP2, TIMP1, and iNOS) were markedly increased in NX-db/db mice while significantly reduced with PBI-4547 treatment.

Conclusions:
Taken together, these results suggest that PBI-4547 offers the potential as a novel therapy for diabetic nephropathy by reducing insulin resistance, fibrosis and improving kidney function and structure.

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-037

WITHDRAWN

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-038

SERUM CYSTATIN C FOR ACUTE KIDNEY INJURY EVALUATION IN NON-CRITICALLY ILL CHILDREN TREATED WITH AMINOGLYCOSIDES

Michael Zappitelli (1), Lorraine Lau (1), Zubaida Al-Ismaili (1), Maya Haasz (2), Michael Pizzi (3), Jillian Caldwell (1), Melissa Piccioni (1), Theresa Mottes (4), Larry Lands (1), Prasad Devarajan (4), Stuart Goldstein (4), Michael Bennett (4)
(1) Montreal Children's Hospital
(2) St. Barnabas Hospital
(3) McGill University Health Centre
(4) Cincinnati Children's Hospital Medical Center

Background. Acute kidney injury (AKI) is commonly caused by nephrotoxic medication and is associated with adverse patient outcomes. Cystatin C (CysC) is a more accurate marker of glomerular filtration rate than serum creatinine (SCr), and may also be an earlier and more accurate marker of AKI.

Objectives. We evaluated serum CysC to predict AKI development and persistent kidney dysfunction in non-critically ill children treated with aminoglycosides.

Methods. We performed a prospective cohort study of non-critically ill children treated with an aminoglycoside for ≥ 3 days. Eighty-one patients (with 110 treatment episodes) were studied prospectively with blood (SCr and CysC measurement) and clinical data collection. AKI definition was based on Kidney Disease: Improving Global Outcomes (KDIGO) guidelines, using SCr (SCr-AKI) and CysC (CysC-AKI). We calculated area under the curve (AUC) for CysC to diagnose SCr-AKI and to predict persistent SCr rise (a) SCr-AKI duration >48 hours; (b) ≥15%, 25% or 50% SCr rise from baseline at treatment end. We evaluated SCr- and CysC-AKI associations with hospital length of stay (LOS).

Results. Forty-five percent of patients developed SCr-AKI; 48% developed CysC-AKI. There was 57% agreement in AKI severity staging between the two definitions. CysC rise predicted stage 1 and stage 2 SCr-AKI two days before AKI attainment (AUC=0.75 [95% CI 0.60-0.90]; AUC=0.85 [95% CI 0.75-0.95], respectively). CysC rise on day of AKI development was associated with persistent kidney dysfunction (AKI duration ≥48 hours: AUC = 0.73 [95% CI 0.56-0.90]; ≥50% SCr rise from baseline at treatment end (AUC = 0.76, [95% CI 0.61-0.90]). CysC-AKI was more strongly associated with longer LOS than SCr-AKI, independent of other variables (adjusted p <0.05).

Conclusions: Serum CysC may potentially be used as an early biomarker of AKI and as a predictive measure of persistent AKI following aminoglycoside treatment.

AGM 2015
MONTREAL, QC

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-039

HIGH FAT DIET AND OVEREXPRESSION OF BCL2-MODIFYING FACTOR (BMF) ACT IN CONCERT TO PROMOTE TUBULAR APOPTOSIS IN BMF-TRANSGENIC MICE VIA REACTIVE OXYGEN SPECIES GENERATION

John Chan (1), Anindya Ghosh (1), Hasna Maachi (1), Shaaban Abdo (1), Yixuan Shi (1), Chao-Sheng Lo (1), isabelle Chenier (1), Janos Filep (1), Julie Ingelfinger (2), Shao-Ling Zhang (1)
(1) Université de Montréal
(2) Mass Gen Hosp

Introduction: Apoptosis modulates tubular atrophy in diabetic nephropathy. We previously reported that Bmf (a pro-apoptotic gene) is up-regulated in renal proximal tubular cells (RPTCs) of diabetic obese mice (db/db) compared to lean mice (db/m). However, little is known about how Bmf overexpression modulates tubular apoptosis and the molecular mechanism of regulation of Bmf expression in diabetic kidneys.

Hypothesis: High fat diet (HFD) enhances Bmf-induction of tubular apoptosis and kidney injury via reactive oxygen species (ROS) generation.

Methods: Non-transgenic (non-Tg) mice, catalase-Tg (Cat-Tg) and Bmf-Tg mice overexpressing respective rat Cat and human Bmf in RPTCs were fed HFD from 4 to 20 weeks of age. Control mice were fed normal chow. All animals were euthanized at 20 weeks. Blood glucose (BG) level, systolic blood pressure (SBP) and urinary albumin creatinine ratio (ACR) were monitored bi-weekly. Renal oxidative stress and ROS generation were quantified by dihydroethidium (DHE) staining and lucigenin assay. Tubular apoptosis was evaluated by TUNEL assay. Western blotting and quantitative polymerase-chain reaction (qPCR) were used to quantitate pro-apoptotic protein and genes expression. Rat RPTCs stably transfected with the plasmid, pGL4.20 containing Bmf gene promoter were also studied in vitro.

Results: Non-Tg mice fed HFD exhibited increases in BG level, ACR, renal oxidative stress, tubular apoptosis and pro-apoptotic genes expression, but not in SBP. Catalase overexpression prevented HFD-induced RPTC apoptosis and pro-apoptotic gene expression in Cat-Tg mice. In contrast, overexpression of Bmf aggravated RPTC apoptosis and pro-apoptotic gene expression but not ACR in HFD-treated Bmf-Tg mice. In vitro, high glucose (25 mM D-glucose), hydrogen peroxide and palmitate induced Bmf expression and this was reversed by ROS scavengers.

Conclusion: Our results indicate that HFD and Bmf may act in concert to induce tubular apoptosis via ROS generation, suggesting an important role for the progression of tubular atrophy in diabetes.

AGM 2015
MONTREAL, QC

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-040

INACCURACY OF PLASMA NA MEASUREMENT IN HEMODIALYSIS PATIENTS

Gabrielle Guilbert-Vandal, Rita S. Suri
Néphrologie Hôpital St. Luc, CHUM

Background:
Matching dialysate to plasma sodium (pNa) has been advocated in hemodialysis patients. However, the accuracy of pNa measurement in hemodialysis patients by standard indirect ion-selective electrode (ISE) methods, which rely on normal plasma protein and lipid fractions, is unknown.

Objectives:
To determine whether indirect pNa differs significantly from direct ISE pNa in HD patients, and whether differences are predicted by abnormal total protein and lipids.

Methods:
We measured pre-dialysis pNa by indirect and direct ISE in 118 consenting adult patients in two HD units. Multivariable linear regression with backward elimination of pre-specified variables was used to predict direct from indirect pNa. Differences between direct and indirect pNa, and between direct and predicted pNa, were compared with paired t-tests and scatter plots; absolute deltas of >2 mmol/l were pre-specified as large.

Results:
The difference between direct and indirect pNa ranged from -4.3 to +5,5 mmol/L (absolute mean delta=1.34±1.1mmol/L, p=0.043). Total protein and cholesterol retained significance in the final regression equation (r^2=0,83, p<0.001). Predicted pNa did not differ significantly from direct pNa (range -3.3 to +3.3 mmol/L, mean absolute delta=1.0±0.8, p=0.97), and showed less scatter around direct pNa than indirect pNa (Figs 1,2). Total protein <70g/L was 83% sensitive in predicting delta pNa <–2 mmol/L; total protein>80g/L was 98% specific for delta pNa>2mmol/L.

Conclusions:
Indirect ISE pNa was inaccurate in hemodialysis patients with abnormal total protein. Our regression equation had better accuracy, but requires external validation. Abnormal total protein should prompt direct ISE pNa measurement before prescribing individualized dialysate Na.

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

P-040

Fig 1: **Indirect vs. Direct pNa**

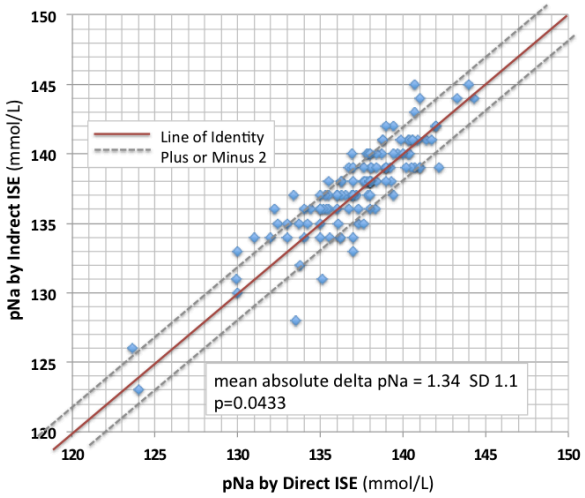
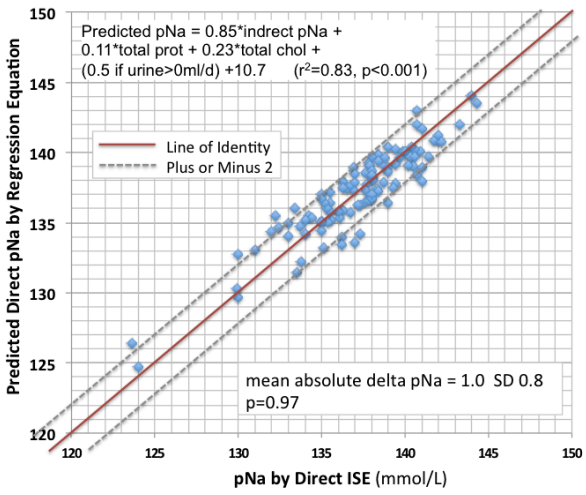


Fig 2: **Predicted vs. Direct pNa**



Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-041

CHRONIC DIALYSIS PATIENTS ADMITTED TO THE INTENSIVE CARE UNIT WITH SEPTIC SHOCK: CHARACTERISTICS AND IN-HOSPITAL MORTALITY

Amit Langote, Edward Clark, Manish Sood
The Ottawa Hospital

Introduction:
Infection is a leading cause of hospitalization for chronic dialysis patients with the highest mortality occurring in those who develop septic shock. Little is known about the characteristics of chronic dialysis patients admitted to intensive care units (ICUs) with septic shock and if they differ compared to those of similar non-dialysis patients.

Objectives:
We sought to describe the demographic characteristics, sites of infection, microbial pathogens and in-hospital mortality of chronic dialysis patients admitted to ICU with septic shock relative to those observed for similarly admitted non-dialysis patients.

Methods:
Using the multicentre, international Cooperative Antimicrobial Therapy of Septic Shock Database (CATSS), we studied 10, 414 patients admitted to ICU, from 1996 to 2008, of whom 800 were chronic dialysis patients. Multivariate cox proportional hazards models were constructed to determine associations between chronic dialysis and in-hospital survival.

Results:
Dialysis patients were more likely to be younger, female and have cardiac disease, diabetes and higher APACHE II scores compared with non-dialysis patients. Septic shock secondary to central venous catheter infection, peritonitis, gastrointestinal ischemia and cellulitis was more common in dialysis patients. Septic shock was also more likely to be associated with resistant organisms. In-hospital death occurred in 45.3 % and 51.0% of chronic dialysis and non-dialysis patients, respectively. After adjusting for demographic factors, comorbidities, site of infection and responsible pathogen, the risk of in-hospital death was increased for chronic dialysis patients compared to non-dialysis patients (HR=1.30, 95% CI 1.18-1.44).

Conclusions:
Chronic dialysis patients admitted to ICU with septic shock differ significantly from non-dialysis patients with respect to demographics, comorbidities, illness severity, sites of infection and causative organisms. After adjusting for these differences, chronic dialysis was found to be associated with a significantly increased risk of in-hospital death.

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-042

PALLIATIVE AND END-OF-LIFE CARE SERVICE UTILIZATION PATTERNS AMONG ONTARIO RESIDENTS DYING ON DIALYSIS BETWEEN 2010-2012.

Gihad Nesrallah (1), Stephanie Dixon (2), Marnie McKinnon (3), Sarah Bota (2), Jade Hayward (2), Erin Arthurs (3), Manish Sood (4), Amit Garg (2), Sara Davison (5)
(1) Humber River Hospital
(2) Institute for Clinical Evaluative Sciences
(3) Ontario Renal Network
(4) Ottawa University
(5) University of Alberta

Background:
Palliative and end-of-life care service use and outcomes among Ontario's dialysis recipients remain uncharacterized.

Methods:
We conducted a descriptive study of 5507 patients who died while receiving or withdrawing from chronic (>30 days) dialysis (hemodialysis or peritoneal dialysis) in Ontario, between January 1, 2010 and December 31, 2012. Data sources included the Ontario Renal Reporting System, the Canadian Organ Replacement Register, the Community Care Access Centre (homecare; CCAC) database, and other linked administrative health datasets. The date of death served as the index date, and we examined patterns of service use in the prior 365 days. We present selected measures of health service use and outcomes in the overall cohort.

Results:
Cohort characteristics at death, expressed as median (interquartile range) or % of cohort included: 75 (66-82) years old, 3.0 (1.3-5.7) years on dialysis, 42% female, 16% in long-term care, 64.5% had diabetes, 14 (12-16) Johns Hopkins Adjusted Clinical Groups (comorbidity score). Final dialysis modality distribution was 85% centre hemodialysis, 1% home hemodialysis, 4% peritoneal dialysis, 10% missing. During the last year of life, 53% received CCAC services (for any reason), while only 4% received CCAC palliative services. 17.5% withdrew from dialysis in the last 30 days of life. In the last 14 days of life, 44% of patients had an emergency department (ED) visit; 36%, had an ICU visit. Among patients receiving any palliative services in the last year of life, the location of death was: 32% in acute care hospital without and 33% with an ICU visit, 5% in ED, 14% in long-term/complex care, and 16% were not captured in our databases and presumed to die at home.

Conclusions:
Palliative and end-of-life care services may not be used optimally by dialysis patients in Ontario. Further studies are needed understand barriers and to improve service planning and delivery.

AGM 2015
MONTREAL, QC

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-043

DURATION OF REMISSION AND OUTCOME IN MEMBRANOUS NEPHROPATHY: A LANDMARK ANALYSIS

Daniel Cattran (1), Esther Kim (1), S. Joseph Kim (1), Heather Reich (1), Michelle Hladunewich (2)
(1) University of Toronto
(2) Sunnybrook Health Sciences Center

Background:
Membranous nephropathy (MN) remains one of the leading causes of nephrotic syndrome in adults. Although remission (complete [CR] or partial [PR]) has been associated with improved long-term outcome in MN, the validity of using changes in proteinuria as a surrogate for renal outcomes is not accepted by regulatory agencies. The current study examined the durability of proteinuria reduction and renal survival.

Methods:
We examined 688 biopsy-proven cases of primary MN from 1958 to 2011. CR, PR, and relapse were defined as proteinuria ≤ 0.3, > 0.3 but < 3.5, and ≥ 3.5 g/day, respectively. The exposure was the duration of CR and/or PR examined at landmark time points of 3, 6, 12, and 24 months after the date of first remission. Additional patient characteristics were collected both at baseline and updated at each landmark. The primary outcome was a composite of end-stage kidney disease (ESKD) or 50% reduction from baseline GFR. Cox proportional hazards models were fitted to examine the association of remission durability and outcome.

Results:
Unadjusted analysis showed persistent remission versus relapse was associated with a decreased risk of the composite endpoint at the 3-month (HR 0.46 [95% CI: 0.26, 0.82]) to 12-month (HR 0.46 [95% CI: 0.27, 0.78]) landmarks. After adjustment for patient characteristics, medications, and kidney function, staying in remission remained associated with improved renal survival at the 3-month (HR 0.39 [95% CI: 0.21, 0.71]) to 24 month (HR 0.41 [95% CI: 0.20, 0.84]) landmarks.

Conclusion:
Longer duration of remission is associated with progressive reduction in the risk of kidney failure. This benefit is seen within 3 months of remission. The study quantifies and validates the value of PR and CR as surrogates for long-term outcome in MN, and provides practical information that nephrologists can use to counsel and manage their patients.

AGM 2015
MONTREAL, QC

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-044

VARIABILITY IN MEAL PHOSPHATE CONTENT DOES NOT SUPPORT CURRENT PHOSPHATE BINDER PRESCRIBING PRACTICES

Deborah Zimmerman, Simon Leung, Brendan McCormick, Jessica Wagner, Mohan Biyani, Susan Lavoie, Ranjeeta Mallick, Tim Ramsay
Ottawa Hospital

Background
Removal of phosphate by peritoneal dialysis is insufficient to maintain normal serum phosphate levels such that most patients must take phosphate binders with their meals. However, phosphate 'counting' is complicated and many patients are simply prescribed a specific dose of phosphate binders with each meal.

Primary Objective:
To determine the variability in meal phosphate content

Methods:
After patients provided consent, basic demographic data was recorded. After appropriate instruction, patients kept a 3-day diet diary that included all foods and beverages consumed in addition to portion sizes. At the same time, patients also documented the amount of phosphate binders taken with each meal. The phosphate content of the each meal was estimated using ESHA Food Processor SQL Software by a registered dietician. The Intra Class Correlation Coefficient was calculated for the meal phosphate content (breakfast, lunch, supper).

Results:
Seventy-eight patients consented to participate in the study; 18 did not complete study protocol. The patients were 60 (±17) years, predominately male (38/60) and Caucasian (51/60). Diabetes mellitus was the most common cause of end stage kidney disease. The variability in meal phosphate intake can be seen in Table 1. The ICC by meal: breakfast - 16405/(16405+10365)=0.61, lunch - 9139.60/(9139.60+61625)=0.13 and supper - 15034/(15034+42967)=0.26

Conclusion:
The standard prescription of a set number of phosphate binders with each meal is not supported by the data. An easy to use phosphate counting program that assists the patient in determining the appropriate amount of phosphate binder to take may enhance phosphate control.

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

P-044

Daily Phosphate Intake (mg)	Phosphate Binder Intake (mg)	Meal	Phosphate mg Mean (SD)
1144 (362)	860 (674)	Breakfast (Day 1)	215 (162)
		Lunch	302 (247)
		Supper	566 (186)
973 (283)	810 (468)	Breakfast (Day 2)	183 (83)
		Lunch	256 (156)
		Supper	462 (218)
959 (249)	870 (640)	Breakfast (Day 3)	239 (119)
		Lunch	233 (148)
		Supper	437 (158)

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-045

LEUKOCYTURIA IS ASSOCIATED WITH SUBSEQUENT SYMPTOMATIC URINARY TRACT INFECTIONS IN KIDNEY TRANSPLANT RECIPIENTS WITH ASYMPTOMATIC BACTERIURIA

Héloise Cardinal (1), Habib Mawad (1), Alexandre Tavares-Brum (2), Alain Duclos (1), Azemi Barama (1)
(1) Université de Montréal
(2) Centre de Recherche du CHUM

Introduction: Whether asymptomatic bacteriuria should be treated in kidney transplant recipients (KTR) is unclear.

Objective: To identify patient- or episode-related characteristics that are associated with antibiotic treatment and subsequent symptomatic urinary tract infection (UTI) in KTR who have asymptomatic bacteriuria.

Methods: We performed a single center, retrospective cohort study in KTR who were transplanted between Jan 1st 2008 and 2013. The outcome of the first asymptomatic bacteriuric episode (culture with ≥10^4 colony forming units/ml) was examined. Symptomatic UTI included pyelonephritis (positive urine culture in the presence of fever and/or leukocytosis) and cystitis (positive culture and irritative lower urinary tract symptoms in the absence of leukocytosis and fever). We used a logistic regression model to identify the factors that are associated with treatment of asymptomatic bacteriuria and with pyelonephritis occurring within 3 months of the initial asymptomatic bacteriuric episode.

Results: Among the 287 participants, 120 (42%) had at least 1 episode of asymptomatic bacteriuria, which was treated in 27 (22%) cases. Female gender (odds ratio (OR): 2.87, 95% confidence interval (CI): 1.14-7.26) and diabetes (OR: 3.72, 95% CI: 1.13-12.26) were associated with a greater likelihood of receiving antibiotic treatment, whereas the presence of leukocyturia was not (OR: 1.15, 95% CI: 0.39-3.42). Over a 3 month period, 8 (7%) patients with asymptomatic bacteriuria experienced symptomatic UTI. The presence of leucocyturia at the time of asymptomatic bacteriuria was associated with the subsequent development of symptomatic UTI (OR: 3.74, 95% CI: 1.06-13.19).

Conclusion: Our findings suggest that the presence of leukocyturia should be considered when deciding whether to treat asymptomatic bacteriuria after kidney transplantation, as its presence is associated with an increased risk of subsequent symptomatic UTI.

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-046 - Withdrawn

AGM 2015
MONTREAL, QC

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-047

ELEVATED APOLIPOPROTEIN B LEVELS ARE NOT ASSOCIATED WITH ALL-CAUSE MORTALITY IN PRE-DIALYSIS PATIENTS

Ahsan Alam, Abdullah Al-Muhaiteeb, Allan Sniderman
McGill University Health Centre

Background:
Lipid levels and indications for lipid lowering therapy change across various stages of CKD. The KDIGO guidelines for lipid management in CKD have recommended investigation of the influence of apolipoprotein B (apoB) levels on patient outcomes.

Objective:
We studied the association of elevated apoB on all-cause mortality in a cohort of patients referred for pre-dialysis care.

Methods:
We conducted a retrospective study in patients referred to a multidisciplinary pre-dialysis clinic at an academic hospital. Patients referred between 2007 and 2011 with measures of fasting LDL cholesterol (LDL-C), non-HDL cholesterol (non-HDL-C), and apoB were included. Cox proportional hazard models were used to examine the association of apoB levels with the primary outcome of all-cause mortality. Patients were censored at kidney transplant, loss to clinic follow up, or the end of the observation period (August 2014).

Results:
The study cohort consisted of 222 patients (mean age 63 years, 61% male, 49% diabetic, eGFR 17.3 ml/min/1.73 m^2) with 54 deaths (27%) over a median 3.3 years follow up. ApoB was significantly correlated with both LDL-C (r=0.76) and non-HDL-C (r=0.48). In those with an LDL <2 mmol/L, 28% of patients still had an apoB >0.8 g/L. For those on statin treatment, the proportion with an apoB >0.8 g/L, LDL >2 mmol/L, and non-HDL-C >2.6 mmol/L was 51%, 41% and 47%, while those not on statins had elevated levels in 70%, 76%, and 70%, respectively. Elevated ApoB was not significantly associated with the primary outcome (HR 0.36, 95%CI 0.12-1.10). Although LDL-C was associated with all-cause mortality, in multivariate analysis only patient age, serum albumin, and CAD history were independently associated with the outcome.

Conclusion:
Lipid parameters, including apoB, remain elevated in a large proportion of pre-dialysis patients. However, elevated apoB levels were not associated with all-cause mortality in this high cardiovascular risk population.

AGM 2015
MONTREAL, QC

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

Abstracts - Poster Presentation

Room: Fontaine A – G F / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-048

THE LONG-TERM CARE OF KIDNEY TRANSPLANT RECIPIENTS: WHAT IS THE ROLE OF THE GENERAL NEPHROLOGIST?

Joseph Kim, Olusegun Famure, Heebah Sultan, Nicholas Phan, Myra Cabellaro
Toronto General Hospital, University Health Network

Background:
Although Canadian kidney transplant recipients (KTR) are traditionally followed by transplant nephrologists (TN) in tertiary care centres, the growing population of KTR has started to overwhelm the capacity of many transplant centres to continue providing long-term care

Objectives:
The objectives of this study are to describe the practices and attitudes of general nephrologists (GN) towards delivering long-term care to KTR in Canada, identify barriers to delivering long-term care, and determine an optimal model of care.

Methods:
This self-reported cross-sectional survey was distributed using the Canadian Society of Nephrology e-mail membership list and consisted of eight domains: general information, training, attitudes, patient care, collaborative care, experience, resources, continuing medical education.

Results:
Of the 77 respondents, 54 (70%) fully completed the questionnaire as of January 13, 2015. All 54 respondents were exposed to kidney transplantation during their nephrology training with over 80% indicating at least 3 months of training. Approximately, 81% and 94% of respondents were instructed in kidney transplant biopsies and managing patients with failing kidney allografts, respectively. Though 46% of respondents felt somewhat or very comfortable in providing long-term care to KTR, 32% and 33% were not at all or not very comfortable managing acute/chronic rejection and opportunistic infections, respectively. Chronic rejection (67%) and non-infectious complications (59%) were considered the biggest challenges in caring for KTR. Insufficient continuing education and experience in transplant medicine were the primary reasons GN were reluctant to manage KTR. Shared care with regular follow-up by GN and TN for clinically stable KTR was considered the optimal model.

Conclusions: A shared or collaborative care model between GN and TN for the long-term management of KTR is a feasible goal but will require educational and clinical support by the transplant centres. The details of the care model to ensure successful follow-up of KTR requires further study.

AGM 2015
MONTREAL, QC

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-049

MEDICAL AND NON-MEDICAL PREDICTORS OF COMPLETING THE KIDNEY TRANSPLANT EVALUATION PROCESS: A SINGLE CENTRE STUDY

Joseph Kim, Olusegun Famure, Julie Van, Yanhong Li, Heebah Sultan, Nicholas Phan, Franz-Marie Gumabay
Toronto General Hospital, University Health Network

Background:
While periods between being wait-listed and transplanted are often affected by factors that may be externally to the transplant centre, determinants associated with the rate at which end-stage kidney disease patients progress through the transplant evaluation process are often centre-specific and have not been extensively studied.

Objectives:
To investigate factors associated with the progression from referral to final disposition (FD) (i.e. being cleared to receive a living organ donation or activated/not activated to the waiting list).

Methods:
We conducted a single-centre retrospective cohort study of 2,617 referrals to our kidney transplant program between January 1, 2003 and December 31, 2012, with follow-up until December 31, 2013. The outcome of interest was time from referral for kidney transplantation to FD. Univariable and multivariable associations of medical and non-medical patient characteristics were examined using Cox proportional hazard models.

Results:
With a median follow-up time of 1.12 [IQR: 0.60, 2.10] years, the cumulative probability of reaching FD from the time of referral was 43.2% at 12-months and 68.3% at 24-months. Black and other non-White races were less likely to complete their transplant evaluation (HR 0.71 [95% CI: 0.59, 0.85] and 0.78 [95% CI: 0.65, 0.95], respectively). Coronary artery disease and psychological complications were also negative predictors for reaching FD (HR 0.82 [95% CI: 0.71, 0.93] and HR 0.61 [95% CI: 0.47, 0.81], respectively). There was no association between markers of social economic status (such as neighbourhood income and the marginalization index) and time from referral to FD.

Conclusion:
We have identified patient characteristics that portend a longer time from referral to FD. Continued evaluation of the pre-transplant process and reporting of performance metrics will may improve the efficiency of the evaluation process and allow healthcare providers to make evidence-based decisions on the choice of interventions to improve centre performance.

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-050

CORRELATES AND CONSEQUENCES OF GOUT AMONG LIVING KIDNEY DONORS

Krista Lentine (1), Ngan Lam (2), Amit Garg (2), Dorry Segev (3), Mark Schnitzler (1), Huiling Xiao (1), David Axelrod (4), Janet Tuttle-Newhall (1), Daniel Brennan (5), Bertram Kasiske (6)
(1) Saint Louis University
(2) Western University
(3) John Hopkins University
(4) Dartmouth Hitchcock Medical Center
(5) Washington University
(6) University of Minnesota

Background:
The correlates and consequences of gout in living kidney donors are not well described.

Methods:
Using a unique database that integrates national registry identifiers of U.S. living kidney donors (1987-2007) with billing claims from a private health insurer (2000-2007), we identified post-donation gout based on medical diagnosis codes or pharmacy fills for gout therapies. The frequencies and demographic correlates of gout after donation were estimated by Cox regression with left- and right-censoring. We also compared rates of renal condition diagnoses among donors with and without gout, matched 1:3 by age, sex, and race.

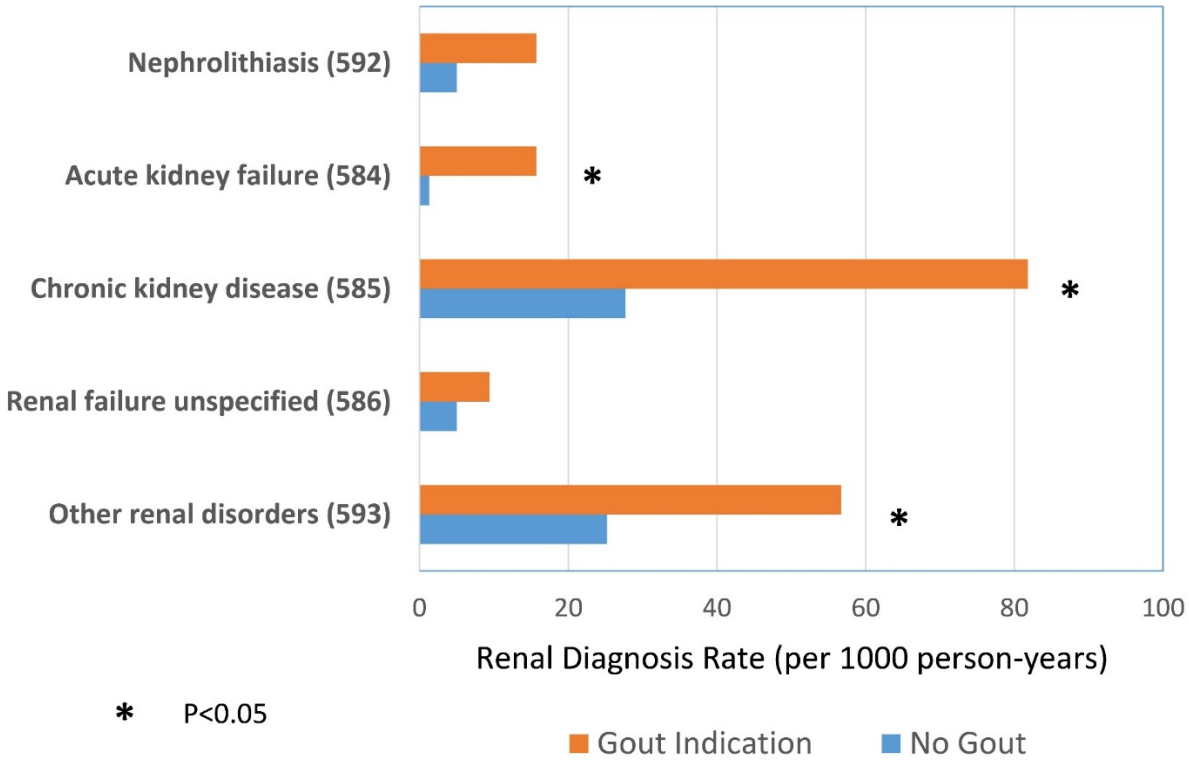
Results:
The study sample of 4650 donors included 13.1% African-Americans. By seven years, African-Americans were almost twice as likely to develop gout as Caucasian donors (4.4% vs. 2.4%; adjusted hazard ratio, aHR, 1.8; 95% confidence interval, CI, 1.0–3.2). Post-donation gout risk also increased with older age at donation (aHR per year 1.05) and was higher in men (aHR 2.80). Gout rates were similar in donors and age- and sex-matched general non-donors (rate ratio 0.86, 95% CI 0.66–1.13). Compared to matched donors without gout, donors with gout had more frequent renal diagnoses, reaching significance for acute kidney failure (rate ratio 12.5; 95% CI 1.5–107.0), chronic kidney disease (rate ratio 2.9; 95% CI 1.7–5.2), and other disorders of the kidney (rate ratio 2.2; 95% CI 1.2–4.2).

Conclusion:
Donor subgroups at increased risk of gout include African-Americans, older donors, and men. Donors with gout have a higher burden of renal complications after demographic adjustment.

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

P-050

POST-DONATION RENAL DIAGNOSIS RATES AMONG MATCHED LIVING KIDNEY DONORS WITH AND WITHOUT GOUT



* P<0.05

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-051

GFR TRENDS DURING FOLLOW-UP IN CHILDREN WITH STEROID SENSITIVE NEPHROTIC SYNDROME

Sulaiman Alsaidi, Daniel Wagner, Silviu Grisaru, Julian Midgley, Lorraine Hamiwka, Andrew Wade, Susan Samuel
Alberta Children's Hospital

Background:
Overall prognosis of children with steroid sensitive nephrotic syndrome (SSNS) is regarded as generally favourable. However, only a few recent studies have evaluated changes in kidney function and blood pressure over time in children with SSNS.

Objectives:
We describe clinical features of SSNS patients and characterize changes in calculated GFR and use of anti-hypertensive medications during follow-up.

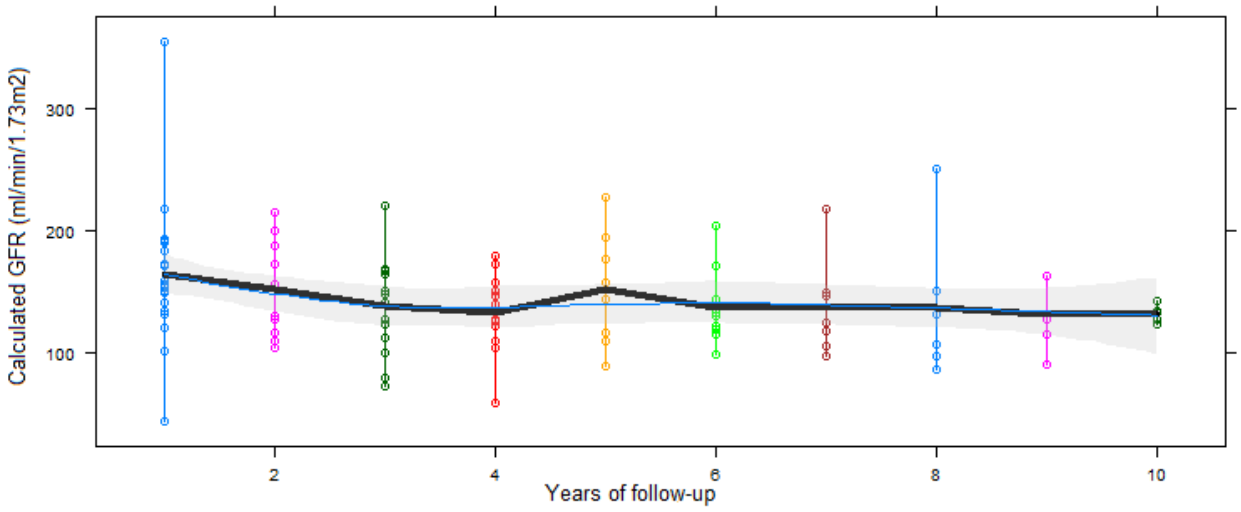
Methods:
We reviewed case records of all patients (age 1 to <18 years) at our centre with SSNS during 1995-2013. We calculated GFR from recorded serum creatinine and height measurements at yearly intervals using the modified Schwartz equation. We also evaluated patients for use of anti-hypertensive medications.

Results:
Seventy eight patients (mean age 4.76, SD 3.6 years, median follow-up 4.37, IQR 5.57 years) were evaluated. Sixty-three (80.8%) had at least one relapse. Twenty-two (28.2%) and 20 (25.6%) were steroid dependent and frequently relapsing, respectively. Forty-three patients (55.1%) received at least one steroid sparing agent and 23.1% of these received a calcineurin inhibitor. One patient had GFR ≤ 90 mL/min/1.73m^2 during observation. Mean GFR shows a downward trend in first 4 years of follow-up and then remained relatively stable over time (Figure). Four patients (5.1%) were on anti-hypertensive medications at the end of follow-up.

Conclusion:
There is an overall downward trend of GFR during early follow-up period among SSNS patients. GFR trends over time need further study in a larger cohort with longer follow-up. Potential effects of hypertension and use of nephrotoxic calcineurin inhibitors for relapse control should be examined.

P-051

Figure: mean calculated GFR with confidence intervals at yearly intervals in a cohort of SSNS patients



Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-052

THE EFFECT OF PERIOPERATIVE ASPIRIN AND CLONIDINE ON URINE BIOMARKER LEVELS FOR ACUTE KIDNEY INJURY: A RANDOMIZED CLINICAL TRIAL

Rey Acedillo (1), PJ Devereaux (2), Chirag Parikh (3), Meaghan Cuerden (1), Marko Mrkobrada (1), Amit Garg (1)
(1) Western University
(2) Population Health Research Institute
(3) Center for Polycystic Kidney Disease Research

Background:
A randomized clinical trial to test whether a perioperative intervention prevents acute kidney injury requires a large sample size and costs several million dollars. Novel urine biomarkers may be a useful outcome measure in smaller trials to identify which interventions do and do not warrant testing in larger trials.

Objectives:
To determine whether aspirin or clonidine compared with placebo alters urine biomarker levels in a Perioperative Ischemia Evaluation-2 (POISE-2) substudy of 270 patients undergoing noncardiac surgery, and to compare these results to the POISE-2 Kidney Substudy of 6905 patients that tested these 2 interventions on acute kidney injury defined using serum creatinine values.

Methods:
We conducted a 2 x 2 factorial, randomized, blinded, clinical trial of 270 patients undergoing noncardiac surgery as a substudy of the main POISE-2 trial (10010 patients). Patients from 2 centers were enrolled from April 2011 to December 2013. Patients were assigned to aspirin (200 mg) or placebo 2 to 4 hours before surgery and then aspirin (100 mg) or placebo daily up to 30 days after surgery. Patients were assigned to oral clonidine (0.2 mg) or placebo 2 to 4 hours before surgery, and then a transdermal clonidine patch (0.2 mg/d) or placebo patch that remained until 72 hours after surgery. The primary outcomes were urine biomarker levels for IL-18, KIM-1, MCP-1, YKL-40, and albumin.

Results:
Aspirin (n=134) versus placebo (n=136) did not alter any of the urine biomarker levels (p-values 0.06 to 0.98). Clonidine (n=134) versus placebo (n=136) did not alter any of the urine biomarker levels (p-values 0.47 to 0.99).

Conclusions:
Among patients undergoing noncardiac surgery, neither aspirin nor clonidine administered perioperatively altered urine biomarker levels. The results are in concordance with the POISE-2 Kidney Substudy where these 2 interventions did not alter the risk of acute kidney injury.

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-053

PREDICTORS OF UROMODULIN EXCRETION: DATA FROM THE CARTAGENE COHORT

Catherine Delmas-Frenette (1), Stephan Troyanov (1), Philip Awadalla (2), Olivier Devuyst (3), François Madore (1)
(1) Hôpital du Sacré-Coeur de Montréal
(2) University of Montreal
(3) University of Zurich

Background:
Common variants in the *UMOD* gene are associated with the level of uromodulin excretion, renal function, and hypertension. However, the impact of non-genetic factors on uromodulin excretion remains ill-defined.

Objectives:
Determine clinical, genetic and urinary predictors of uromodulin excretion in a large population-based cohort.

Methods:
A sample of 946 participants from the CARTaGENE survey was genotyped for rs4293393 and rs12446492. Urinary uromodulin levels were measured using an ELISA method and expressed as a creatinine ratio. We tested associations between uromodulin and several determinants (gender, BMI, smoking status, diabetes status, mean arterial pressure, GFR [using the CKD-EPI equation], serum HDL cholesterol levels and the fractional excretion [FE] of sodium and uric acid) using univariate and multivariate linear regression after log transformation of uromodulin measurements.

Results:
The population studied was 54±9 years old, with 51% female and a GFR of 90±14 ml/min/1.73m^2. Hypertension and diabetes were present in 17% and 11%. The median uromodulin level was 25 (11-42) mg/g of creatinine. Using multivariate linear regression, uromodulin independently increased in parallel to the TT genotypes of rs4293393 and rs12446492, the eGFR, the serum uric acid level and the fractional excretion of uric acid, but decreased in the presence of glycosuria and the use of uricosuric drugs (cf. Table 1).

Conclusions:
This study shows that several factors independently impact uromodulin excretion in addition to genetic polymorphism (rs4293393 and rs12446492).Further studies are warranted to elucidate the mechanisms underlying these associations.

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

P-053

Table 1 Predictors of urinary uromodulin

Variable	Standardized ß	p
GFR (CKD-EPI)	0.127	<0.001
rs4293393 (TT)	0.072	0.035
rs12446492 (TT)	0.084	0.013
Presence of glycosuria	-0.072	0.028
Uric acid	0.143	0.001
Fractional excretion of uric acid	0.403	$<10^{-15}$
Use of uricosuric drugs	-0.076	0.020

AGM 2015
MONTREAL, QC

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-054

PROSPECTIVE, 6 MONTH, OPEN LABEL, CONVERSION STUDY FROM MYCOPHENOLATE MOFETIL TO MYCOPHENOLIC ACID EVALUATING THE SEVERITY OF GASTRO-INTESTINAL SYMPTOMS AND MYCOPHENOLIC ACID URINARY METABOLITE AS A SURROGATE MARKER OF PLASMATIC AREA UNDER THE CURVE.

Caroline Lamarche, Vincent Pichette, Duy Tran, Anne Boucher, Lynne Senécal, François Leblond, Suzon Collette
Hôpital Maisonneuve-Rosemont

Background:
Studies have shown that mycophenolic acid (MPA) has a better GI side effect profile then mycophenolate mofetil (MMF) up to three months after initiation of treatment. Measurement of 12 hours plasmatic MPA area under the curve (AUC) is the most accurate way to determine MPA exposure, but it is time and ressources consuming. MPA glucuronide (MPAG) is the most abundant metabolite of MPA and it is eliminated via the urine.

Objectives:
The first objective was to evaluate side effects of MPA on a six months basis. The second one was to evaluate correlation between urinary MPAG and plasmatic MPA.

Methods:
Open label single center study of 56 patients receiving MMF underwent an equimolar conversion to MPA. Patients filled the gastrointestinal symptom rating scale (GSRS) questionnaire at study entry, month 1,3 and 6. Thirteen of the 56 patients had 12 hours plasma MPA AUC and 12 hours urine content of MPAG measured by high performance liquid chromatography at month 1 and 3 after conversion.

Results:
Score for each dimension of the GSRS questionnaire decreases significantly one month after conversion and stays statistically significant up to 6 months ($p<0.0001$). 85.2% of patients could tolerate initial or a higher dose of MPA. Correlation between urinary amount of MPAG excreted in 12 hours and the 12 hours plasmatic MPA AUC was $r=0.82$ ($p=0.0011$) at month 1 and $r=0.87$ ($p=0.0002$) at month 3 and remained statistically significant with a correction for the glomerular filtration rate ($r=0.93$ ($p<0.0001$) at month 1 and $r=0.84$ ($p=0.0004$) at month 3).

Conclusions:
In our study, conversion from MMF to MPA to improve GI tolerance was successful and safe in more than 85% of patients. Furthermore, measuring the urinary MPAG excretion in a twelve-hour urine collection could be a practical and accurate surrogate marker for plasmatic MPA AUC.

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-055

DELAYS IN DIAGNOSIS OF CHILDHOOD NEPHROTIC SYNDROME

Asha Hollis, Kyle Kemp, Roxanne Miller, Silviu Grisaru, Andrew Wade, Lorraine Hamiwka, Julian Midgley, Susan Samuel
University of Calgary

BACKGROUND

Our centre's clinical experience suggests delays in diagnosis and treatment errors are common in children presenting for the first time with nephrotic syndrome, likely due to non-specificity of symptoms.

OBJECTIVES

To determine what healthcare use occurred prior to diagnosis, and to examine what factors impact delays in diagnosis and whether these factors are modifiable.

METHODS

A phone/in-person survey of approximately 15 minutes was conducted with legal guardians of children 1 to 18 years who had been diagnosed with nephrotic syndrome and were seen at our centre within the past 12 months. The survey elicited patient and family level variables (including income and education), child healthcare history, and determined frequency and type of health care used for symptoms prior to receiving a diagnosis of nephrotic syndrome.

RESULTS

Sixteen patients were included (12M, 4F: median age 3.1 years, range: 1.3-11.2) from varying ethnicities and socioeconomic profiles. Delays in diagnosis were as high as 110 days from onset of symptoms. Nine of the 12 patients who were initially seen by their family doctor or walk-in clinic received an incorrect diagnosis, while 9 of the 10 patients who visited the ER were correctly diagnosed. All families reported that once a urine test was completed, a correct diagnosis was obtained, regardless of the treatment setting. The majority of patients had no pre-existing food allergies, yet the most common incorrect diagnosis was allergies.

DISCUSSION

The diagnosis of childhood nephrotic syndrome is commonly delayed, especially in primary care settings. Non-invasive urine tests appear to be underused in primary healthcare settings leading to lack of detection of proteinuria. There is a need to further educate physicians regarding symptoms of nephrotic syndrome in children and the value of using a urinalysis as a diagnostic tool in a puffy child.

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-056

THE IMMUNOGENIC PERLECAN FRAGMENT LG3 IS RELEASED DURING APOPTOSIS BUT NOT DURING NECROSIS IN EXTRACELLULAR VESICLES DOWNSTREAM CASPASE 3 ACTIVATION

Déborah Beillevaire (1), Julie Turgeon (1), Diane Gingras (1), Eric Boilard (2), Mélanie Dieudé (1), Marie-Josée Hébert (1)
(1) Université de Montréal
(2) Université Laval

LG3, a C-terminal fragment of perlecan, has been implicated in aggravation of renal allograft rejection and vascular injury. LG3 is produced at least in part by apoptotic vascular cells. Here, we aim at characterizing the molecular pathways regulating LG3 export.

Primary human umbilical vein endothelial cells (EC) or mouse aortic endothelial cells (mEC) were exposed to serum starvation (SS) and H_2O_2, two stimuli replicating clinically relevant stressors of importance during harvesting, preservation and ischemia-reperfusion of renal allografts. Apoptosis and necrosis levels were evaluated by fluorescence microscopy (Hoescht/propidium iodide), flow cytometry and western blotting (WB) analyses. LG3 export was monitored in EC supernatants by WB. Extracellular vesicles (EV) were evaluated by electron microscopy.

While H_2O_2 treatment led to necrosis, serum starved EC demonstrated apoptotic morphology, caspase-3 activation and absence of cell membrane permeability. LG3 release was increased in medium conditioned by SS apoptotic EC and DEVD-FMK, a caspase 3 inhibitor, or caspase-3-/- mEC led to reduced production of LG3. LG3 was not recovered in medium conditioned by H_2O_2-treated necrotic EC. Small particle flow cytometry showed that both SS and H_2O_2 treatment triggered secretion of EV ranging in size from 30nm to 5µm. Electron microscopy of EV released by apoptotic cells demonstrated the presence of a heterogeneous population of EV, some compatible with apoptotic bodies, others bearing classical cup-shape morphology characteristic of exosomes and a third group of round membrane-bound EV ranging in size from 10 to 50nm but lacking cup-shape morphology. Electron microscopy with immunogold labelling demonstrated the presence of LG3 in EV specifically in the third EV sub-group.

These results demonstrate that LG3 is released by apoptotic cells downstream of caspase-3 activation in EV that differ from classic exosomes. Necrosis induced by oxidative stress does not lead to LG3 release, highlighting further the specific importance of apoptosis in LG3 export.

AGM 2015
MONTREAL, QC

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-057

IMPACT OF ACUTE KIDNEY INJURY FOLLOWING LIVER TRANSPLANTATION ON LONG-TERM OUTCOMES

Emilie Trinh, Ahsan Alam, Jean Tchervenkov, Marcelo Cantarovich
McGill University Health Center

Background:
The incidence of acute kidney injury (AKI) after orthotopic liver transplantation (OLT) ranges from 17% to 64%. AKI is associated with prolonged hospitalization and increased early mortality. However, the long-term outcomes of AKI remain to be determined.

Purpose:
In our study, we examined the impact of AKI on long-term patient (pt) survival and on the incidence of stage 4 and 5 CKD.

Methods:
We studied 491 OLT recipients at a single center between 01/1990 and 08/2012, and pts were followed for up to 20 years. We identified 278 pts (56.6%) with AKI defined as either an increase in serum creatinine (SCr) ≥26.5 µmol/L within 48-hr or elevation in SCr 1.5X above baseline within 7 days.

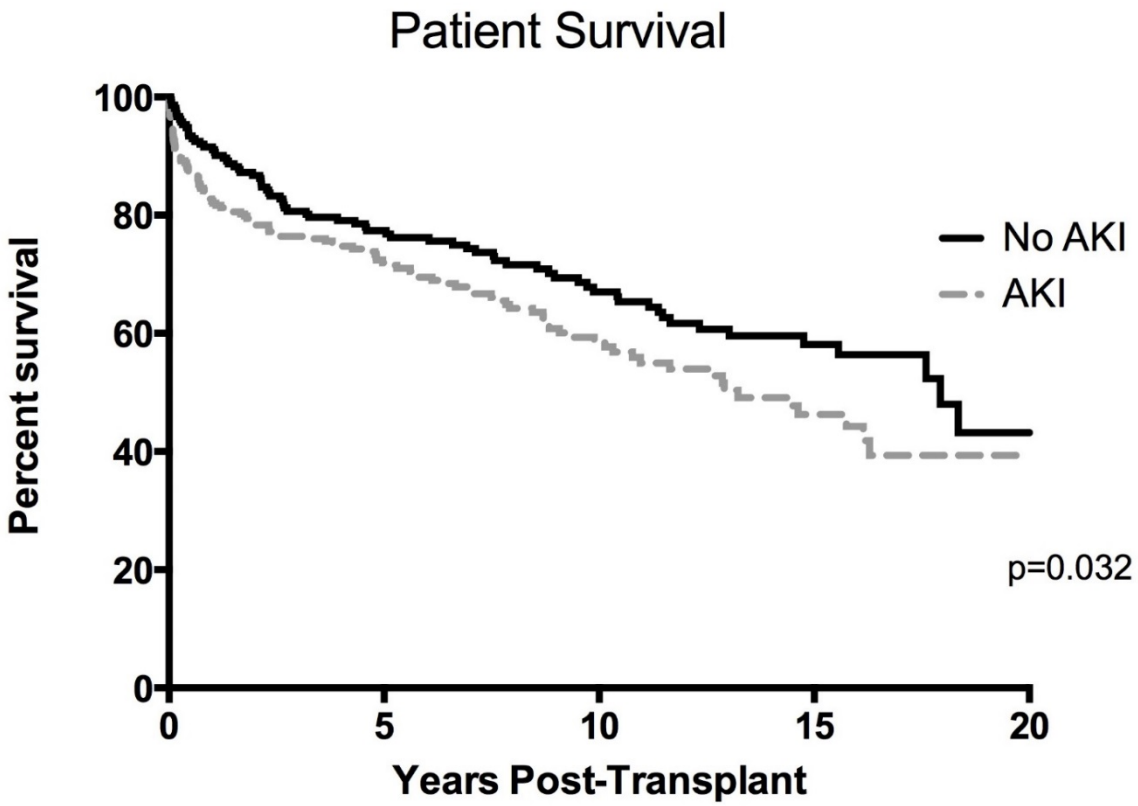
Results:
In a multivariable Cox proportional hazards model, survival was worse in pts with AKI (HR: 1.40, 95% CI: 1.03-1.89, p=0.032, Figure 1). The median survival time was 13.2 yrs for pts with AKI, and 17.9 yrs in pts without AKI. Severe (stage 3) AKI was associated with worse pt survival (HR: 2.29, 95% CI: 1.46-3.58, p=0.001), while AKI stages 1 and 2 were not statistically different. The risk of developing stage 4-5 CKD was also higher in pts with AKI compared to non-AKI pts (17.5% vs. 9.1%) with a HR of 2.00 (95% CI: 1.13-3.59, p=0.020).

Conclusions:
Our findings suggest that AKI after OLT is associated with poor long-term outcomes, including worse pt survival and higher incidence of CKD stage 4-5. Strategies to prevent and manage pts with AKI need to be developed.

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

P-057

Figure 1:



AGM 2015
MONTREAL, QC

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-058

BIOMARKERS FOR EARLY ACUTE KIDNEY INJURY DIAGNOSIS IN THE PEDIATRIC INTENSIVE CARE UNIT: A FOUR-CENTRE CANADIAN PILOT STUDY

Jennifer Palermo (1), Allison Dart (2), Catherine Morgan (3), Cherry Mammen (4), Michael Pizzi (1), Alanna De Mello (4), Nicholas Majaesic (3), Jillian Caldwell (1), Ana Palijan (1), Michael Bennett (5), Prasad Devarajan (5), Michael Zappitelli (1)
(1) Montreal Children's Hospital
(2) University of Manitoba
(3) University of Alberta
(4) University of British Columbia
(5) University of Cincinnati

Background:
Acute kidney injury (AKI) occurs early in pediatric intensive care unit (PICU) admission and increases risks for poor outcomes. New urine biomarkers may provide earlier AKI diagnosis, increasing opportunities for intervention.

Objectives:
Evaluate neutrophil gelatinase-associated lipocalin (NGAL), interleukin-18 (IL-18) and liver fatty acid binding protein (LFABP) as biomarkers for earlier AKI diagnosis and for prediction of AKI duration.

Methods:
Introduced a PICU-wide urine collection protocol in four Canadian centers between July 2013-November 2014. Study design: prospective observational cohort study (inclusion: PICU admission, 1 month-18 years; exclusion: cardiac surgery, prior severe kidney disease, unavailable urine or serum in first 3 PICU days. AKI definition: KDIGO serum creatinine (SCr) criteria. Analysis: biomarkers on PICU days 1-3 to predict AKI (area under curve [AUC], 95% CI) and to predict AKI duration (Spearman correlation).

Results:
13 out of 82 (15.9%) patients developed AKI by KDIGO-SCr (mean±SD age 10.3±6.3 years, ICU stay 17.8±23.5 days, invasive mechanical ventilation 7.6±4.5 days, 7 (54%) males). PICU day 1 NGAL, IL-18 and LFABP predicted AKI (AUC's ≥ 0.72 (Table)); PICU day 2 AUC's were lower (0.59-0.71)(Table)). Biomarkers from PICU days 1-2 weakly correlated with number of AKI days (Table).

Conclusion:
An early PICU urine collection protocol is feasible**.** Biomarkers NGAL, IL-18, and LFABP from early PICU admission predict AKI development. More research is required to evaluate biomarkers for predicting AKI duration.

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

P-058

	PICU Day	Area under the Curve	95% Confidence Interval	Spearman's Rho	p-value
NGAL	Day 1	0.75	0.60-0.90	0.27	0.42
	Day 2	0.71	0.52-0.90	0.62	0.05
IL-18	Day 1	0.85	0.74-0.95	0.20	0.58
	Day 2	0.59	0.41-0.78	0.66	0.55
LFABP	Day 1	0.72	0.52-0.92	0.31	0.38
	Day 2	0.64	0.44-0.84	0.79	0.01

Legend: PICU pediatric intensive care unit, AKI acute kidney injury, (NGAL neutrophil gelatinase associated lipocalin, IL-18 interleukin-18, LFABP liver fatty acid binding protein

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-059

CENTRAL PARAMETERS OF ARTERIAL STIFFNESS AND EARLY CHRONIC KIDNEY DISEASE: DATA FROM THE CARTAGENE COHORT

François Madore (1), Dominique Dupuis (1), Mohsen Agharazii (2), Philip Awadalla (3), Stéphan Troyanov (1)
(1) Hôpital du Sacré-Coeur de Montréal
(2) CHUQ L'Hôtel-Dieu de Québec
(3) CHU Sainte-Justine

Background: Advanced CKD, through various potential mechanisms, has been linked to vascular stiffness. However, recent findings in patients with early CKD have cast doubt over the association between CKD and vascular stiffness. We examined the association between parameters of vascular stiffness and early CKD.

Methods: We used data from the CARTaGENE survey, a randomly selected cohort from the general population, aged 40 to 69 years. Pulse wave analysis was performed by tonometry on radial artery and central pulse wave profile was obtained by generalized transfer function(Sphymocor SCOR-Px) on 17 464 subjects. Central pulse pressure (cPP), PP amplification (PPamp), augmentation index (Aix), augmented pressure (AP), timing of reflected wave (Tr) and forward pressure (Pf) were assessed. CKD was defined by an eGFR <60ml/min/1.73m^2(CKD-EPI equation).

Results: After application of stringent criteria to insure the validity of measurements, 6741 subjects were included for analysis. Mean age was 55±8 years, 44% of participants were women, 14% active smokers, 24% were treated for hypertension, 10% had diabetes, and 6% had known cardiovascular disease. CKD stage 3 to 5 was present in 275 patients(4%).
Table 1 shows the association between parameters of arterial stiffness and CKD.

Conclusions: In this large cohort from the general population, prevalent early CKD was not independently associated with arterial stiffness. The impact of kidney function on arterial stiffness may only be manifest at advanced stages of kidney disease.

	Univariable		**Multivariable***	
Parameter	*ß coefficients*	*P*	*ß coefficients*	*P*
cPP(mmHg)	0.060	<0.001	0.004	0.646
PPamp	-0.017	0.154	0.006	0.434
Aix(%)	0.018	0.130	-0.004	0.665
AP(mmHg)	0.034	0.006	-0.008	0.332
Pf(mmHg)	0.067	<0.001	0.014	0.171
Tr(ms)	-0.048	<0.001	-0.014	0.185

*variables included: age, gender, BMI, smoking status, diabetes, total cholesterol, statin treatment, anti-hypertensive medication, cardiovascular disease, heart rate, and central mean pressure.

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-060

LONG-TERM CHRONIC KIDNEY DISEASE (CKD) AND HYPERTENSION (HTN) IN CHILDREN PREVIOUSLY ADMITTED TO THE INTENSIVE CARE UNIT (ICU)

Kelly Benisty (1), Catherine Morgan (2), Ana Palijan (1), Sudeshna Bhattacharya (2), Michael Pizzi (1), Julie Ann Doucet (1), Ari R. Joffe (2), Michael Zappitelli (1)
(1) McGill University Health Centre
(2) University of Alberta

Background:
Acute kidney injury (AKI) in ICU children is associated with poor hospital outcomes.

Objectives:
Describe renal abnormalities 4-9.5 years post-ICU and describe AKI versus non-AKI differences.

Methods:
Preliminary analysis of an ongoing cross-sectional longitudinal follow-up study of previously ICU-admitted children from two Canadian centres (exclusions: cardiac surgery, pre-ICU renal disease, geographical distance). Protocol: study visit approximately 5 years from ICU admission (creatinine (SCr), cystatin C (CysC), urine albumin-creatinine (ACR), physical exam). AKI defined by KDIGO. Baseline SCr: lowest in 3 months prior; when unknown, age-dependent GFR equation assuming normal GFR was used. GFR at follow-up was estimated using Schwartz and Zappitelli CysC formulae. Proportions and 95% confidence intervals were calculated. Outcomes: Low (<90ml/min/1.73m^2) eGFR or high (>3.0) ACR, HTN (≥95th percentile), pre-HTN (≥90th percentile).

Results:
355 patients consented (recruitment ongoing). Data available from 218 (mean±SD 5.4±1.5years post-ICU, age 9.4±5.4 years, 57.6% male, PICU length of stay 9.4±5.4days). Follow-up SCr-eGFR=131.0±34.1 ml/min/1.73m^2[95% CI 126.1-135.9], %SCr-eGFR<90=7.9[95% CI 4.5-12.8], CysC-eGFR= 141.4±37.4ml/min/1.73m^2[95% CI 136.2-146.6], %CysC-eGFR<90=2.0[95% CI 0.5-5.1]. Follow-up ACR=2.3±5.3[95% CI 1.5-3.0], %ACR>3=15.2[95% CI 10.5-21.0]. Systolic BP percentile=56.5±25.9[95% CI 52.7-60.3], Diastolic BP percentile=49.8±20.4[95% CI 46.8-52.8], %HTN=6.1[95% CI 3.1-10.7], %pre-HTN=12.8[95% CI 8.3-18.6].

Table: There were no statistically significant AKI versus non-AKI differences in renal outcomes; some outcomes were more common in non-AKI patients (see Table).

Conclusion: Renal abnormalities are common 5 years post-PICU, however difference in AKI vs. non-AKI are not clear. Study must be completed before conclusions are drawn about effect of AKI. Risk factors for developing CKD or HTN need to be evaluated.

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

P-060

	AKI (n=46)	No AKI (n=75)	Stage 0 or 1 AKI (n=112)	Stage 2 or 3 AKI (n=15)
SCr-eGFR	126.3±28.6 [117.2-135.3]	131.4±33.4 [123.1-139.64]	130.3±30.8 [122.9-136.3]	131.3±35.9 [112.3-144.5]
%SCr-eGFR<90	9.8 [2.7-23.1]	6.1 [1.7-15.0]	7.1 [3.3-15.9]	7.1 [0.1-26.0]
CysC-eGFR	144.1±29.8 [135.1-153.2]	147.2±49.7 [135.6-158.9]	146.6±43.7 [136.5-154.4]	147.0±35.1 [131.2-166.8]
%CysC-eGFR<90	2.27 [0.06-12.0]	0 [0-4.9*]	0.9 3.8*	0 [0.1-24.9]
SBP %ile	55.5±22.1 [47.9-63.0]	55.1±26.0 [48.5-61.7]	54.6±24.7 [48.0- 59.0]	60.6±22.4 [52.4- 75.0]
DBP %ile	47.2±18.2 [40.9-53.4]	52.2±21.5 [46.7-57.7]	50.9±20.7 [45.8-54.9]	49.8±19.2 [39.6- 61.1]
% Pre-HTN	2.9 [0.07-14.9]	14.7 [6.9-26.2]	12.4 [5.3-20.3]	0 [0.1-30.2]
% HTN	2.9 [0.07-14.9]	6.6 [1.8-15.9]	5.6 [1.4-12.3]	0 [0.1-30.2]
ACR	1.9±2.9 [0.98-2.8]	3.2±8.3 [1.1-5.2]	2.7±7.0 [0.9-4.7]	1.7±1.8 [0.9-4.7]
%ACR>3	19.5 [8.8-34.9]	15.4 [7.6-26.5]	14.3 [6.5-21.5]	28.6 [16.3-61.6]

(*) one-sided, 97.5% confidence interval

Data shown as either Mean±SD [95% CI] or % [95% CI]

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-061

HEALTHCARE COSTS ATTRIBUTABLE TO HYPERTENSION: HISTORIC AND PROJECTED COSTS IN ALBERTA, CANADA

Kerry McBrien (1), Colin Weaver (1), Norm Campbell (1), Scott Klarenbach (2), Braden Manns (1), Brenda Hemmelgarn (1), Matthew James (1), Marcello Tonelli (1), Fiona Clement (1)
(1) University of Calgary (2) University of Alberta

Background:
Hypertension is a major risk factor for cardiovascular diseases, which have high morbidity, mortality and cost. Although effective hypertension prevention programs exist, little is known about their potential cost savings.

Objectives:
To quantify the health care costs attributable to hypertension and project this figure to 2020.

Methods:
We used Alberta administrative data from 2002 to 2010 that included physician claims, hospitalizations, and ambulatory care. We identified patients with and without hypertension and calculated their total health care costs. We then estimated the costs that could be attributable to hypertension using a two-part generalized linear regression model that adjusted for comorbidities and sociodemographic factors. Finally, we projected attributable costs to 2020 and estimated costs at the national level.

Results:
Twenty-one per cent of Alberta adults had hypertension in 2010, and this number is expected to reach 27% by 2020. The average hypertensive patient had an annual health care cost of $5607 (excluding medications), of which $2276 (41%) was attributed to hypertension. We projected that Alberta hypertension-attributable costs will nearly double from 2010 to 2020, from $1.4 billion to $2.7 billion. This projected $1.3 billion increase is due to population growth (14%), an aging population (39%), increasing age- and sex-specific hypertension prevalence (15%), and increasing per-patient hypertension-attributable costs (31%). Accounting for provincial differences in per capita health care spending and hypertension prevalence, we estimated the Canadian healthcare costs attributable to hypertension to be $13.1 billion in 2010 and $19.3 billion in 2020.

Conclusions:
The costs attributable to hypertension are significant and represent 20.5% of direct health care spending on adults. Increasing hypertension prevalence and severity contribute significantly to a large anticipated growth in costs. Implementation of interventions effective at decreasing both these factors may lead to large cost savings.

AGM 2015
MONTREAL, QC

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-062

PREVIOUS AMINOGLYCOSIDE USE AND ACUTE KIDNEY INJURY RISK IN NON-CRITICALLY ILL CHILDREN

Jeremy Saban, Michael Pizzi, Jillian Caldwell, Ana Palijan, Michael Zappitelli
McGill University Health Centre, Montreal Children's Hospital

Background and Objectives:
Aminoglycosides (AG) are commonly used nephrotoxins in children, however AG-acute kidney injury (AKI) risk factors are not well described. We examined previous AG treatment as an AKI risk factor during current AG treatment.

Methods:
Retrospective single-centre cohort study of AG treatments in children 1 month-18 years (October 2008-April 2012)(exclusions: no serum creatinine data (SCr), baseline renal disease). Main exposures:(number and hours of prior AG treatments; time since last AG treatment. Outcome: AKI, based on Kidney Disease: Improving Global Outcomes guidelines (KDIGO). Logistic regression was used to examine exposure-outcome associations.

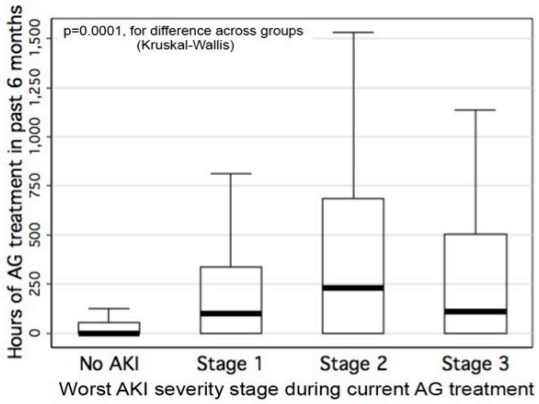
Results:
Of 1709 treatments (1245 individuals), 1271 were eligible . AG treatments with Stage 1, 2 and 3 AKI were associated with (median [interquartile range]) 98[339], 231[688], 111[505] hours of prior AG, respectively, *vs.* non-AKI (0[54] hours) ($p<0.0001$) (figure 1). AKI treatments were associated with (mean ± SD) 1.5±1.8 previous (6 months) AG treatments, *vs.* 0.9±1.6 for non-AKI (figure 1). Number of previous 6 months AG treatment days (adjOR = 1.04, 95% CI 1.03-1.06, $p<0.001$), younger age (adjOR 0.96, 95% CI 0.93-0.99, $p=0.009$), admission to hematology-oncology (adjOR 3.88, 95% CI 2.17-6.96, $p<0.001$) and tobramycin treatment (adjOR 1.77, 95% CI 1.04-3.02, $p=0.04$) were independently associated with AKI during current AG treatment. AG treatments with stage 1 and 2 AKI had fewer days since last AG treatment compared to non-AKI ($p<0.02$ and $p<0.005$, respectively, Mann-Whitney test).

Conclusions:
Prior AG treatment is a risk factor for AKI and should be considered when dosing and monitoring hospitalized children treated with AG.

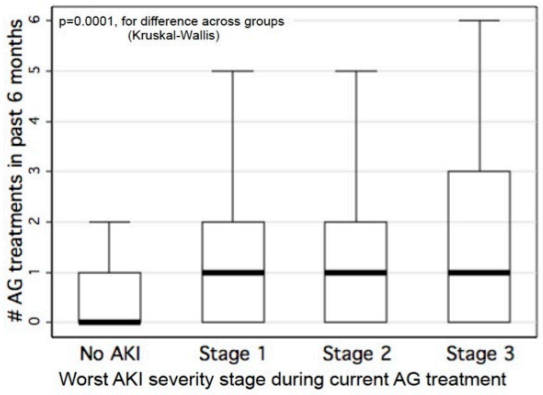
Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

P-062

A)



B)



Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-063

A NEW MUTATION OF ADAMTS-13 CAUSING LATE ONSET CONGENITAL THROMBOTIC THROMBOCYTOPENIC PURPURA

Dorothy Thomas, Bonnie Richardson
University of Saskatchewan

Congenital thrombotic thrombocytopenia (cTTP), caused by mutations in the gene coding for the von Willebrand factor-cleaving protease (ADAMTS-13), is exceptionally rare, with an estimated 150 cases worldwide. The only Canadian case previously described occurred in an infant. Herein, we present a case of cTTP in a gentleman with a first attack at 58 years of age, with no known precipitating event.

This patient presented to the emergency department feeling weak and dizzy with sudden visual changes and without a prodromal illness. Investigations revealed severe thrombocytopenia, acute kidney injury with elevated lactate dehydrogenase and bilirubin. Hemoglobin was normal, the peripheral blood smear was negative for schistocytes, and the direct antiglobulin test was negative. Expert nephrology consultation recommended urgent plasma exchange for suspected TTP and the patient made a steady recovery with his platelets and renal function returning to baseline after four weeks. Renal biopsy was sub-optimal but no definite thrombomicroangiopathy was observed. ADAMTS-13 levels were found to be severely reduced with no inhibitory antibody identified, suggesting a congenital TTP etiology. Genetic sequencing revealed a previously unpublished homozygous mutation of the ADAMTS-13 gene, substituting lysine for asparagine at codon 1267 (c.3801C>G, p.N1267K). Thus, the patient's treatment was adjusted to regular plasma infusions and he continues to do well two years later.

Early diagnosis of TTP is essential as it is rapidly fatal without plasma treatment to restore the ADAMTS-13 activity. Patients with the congenital form of TTP likely require lifelong plasma infusions; however, development of other therapies is ongoing. Differentiating the congenital and acquired cases of TTP is paramount as treatment modalities differ. Currently, over 140 ADAMTS-13 mutations are present among the 150 known cases worldwide; therefore, elucidating a genotype-phenotype link is challenging and active research area.

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-064

PODOCYTE-DERIVED MICROPARTICLES STIMULATE A PRO-FIBROTIC RESPONSE IN CULTURED HUMAN PROXIMAL TUBULE EPITHELIAL CELLS

Dylan Burger, Mercedes Munkonda, Shareef Akbari, Maddison Turner
Ottawa Hospital Research Institute

Background:
Microparticles (MPs) are 0.1-1.0 μm sealed membrane vesicles shed from the plasmalemma of stressed/injured cells. Recently, we reported that podocytes produce MPs in response to high glucose and that podocyte MPs may be found in the urine of diabetic mice in advance of albuminuria. In the present study we examined whether pMPs interact with proximal tubular cells and influence cell function.

Methods:
Podocyte MPs were isolated from the media of cultured human conditionally-immortalized podocytes by differential centrifugation. Cultured human proximal tubular epithelial cells exposed to podocyte MPs and MP-cell interaction was examined by fluorescence microscopy. Effects of MPs on intracellular signaling responses were examined by Western blot analysis. Expression of the extracellular matrix proteins fibronectin and collagen type IV as well as hypertension-related calcium regulated gene (hCaRG, a small intracellular protein involved in tubular repair) were examined by Western blot. Reactive oxygen species (ROS) production was assessed by lucigenin chemiluminescence.

Results:
In cultured human proximal tubular cells, fluorescence microscopy revealed cell surface binding of podocyte MPs, suggesting a paracrine effect. Treatment with podocyte MPs increased p38 mitogen activated protein kinase phosphorylation (~3 fold) after 30 minutes ($P<0.05$, $n=4$). By contrast, c-Jun N-terminal kinases and extracellular signal-regulated kinase phosphorylation levels were not significantly altered over 24 hours ($P>0.05$, $n=4$). Expression of fibronectin and collagen type IV were significantly increased at 72 hour post-treatment ($p<0.01$, $n=4$-6) while expression of hCaRG was significantly decreased ($P<0.01$, $n=3$). Proximal tubular ROS production was increased by podocyte MP treatment at 16 and 24 hours ($P<0.01$, $n=4$).

Conclusion:
Our results suggest that podocyte MP interact with proximal tubule epithelial cells and induce intracellular signaling, ROS production, and fibrosis while impairing reparative processes. Such effects may play a role in the development of tubular injury in glomerular disease.

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-065

AUTOPHAGY DRIVES FIBROBLAST SENESCENCE THROUGH MTORC2 REGULATION

Monique Bernard, Mostafa El-Diwany, Bing Yang, Katy Underwood, Francis Rodier, Marie-Josée Hébert
Centre Hospitalier de l'Université de Montréal - CRCHUM

Sustained autophagy favors differentiation of fibroblasts into myofibroblasts, which represent major cellular players involved in fibrosis development. We showed previously that MTORC2 activation plays a central role in this process. Autophagy-induced MTORC2 activity controls the expression of the pro-fibrotic cytokine CTGF (connective tissue growth factor) and the downstream up-regulation of myofibroblast markers ACTA2/αSMA (actin, alpha 2, smooth muscle, aorta), COL1A1 (collagen, type I, alpha 1), COL3A1 and the formation of stress fibers. Alternatively, cellular senescence is also involved in regulating fibrosis, and autophagy has been linked with senescence. Here we test the hypothesis that senescence plays an intermediary role in myofibroblast differentiation induced by sustained autophagy. We analysed markers of cell cycle arrest/senescence in fibroblasts in vitro, where a sustained autophagic response is triggered by serum starvation. Autophagy, senescence and myofibroblast differentiation were analysed by Western Blot. Fibroblasts serum starved for up to 4 days showed expression of the senescence markers CDKN1A (p21) and CDKN2A (p16). To inhibit autophagy in serum starved fibroblasts, we used 3-methyladenine, LY294002 or *ATG7* silencing. All treatments prevented expression of senescence markers. Inhibiting MTORC2 activation with long-term exposure to rapamycin, Torin 1 or by silencing *RICTOR*, also prevented induction of senescence markers. Since ROS (Reactive Oxygen Species) are known inducers of senescence, we investigated their role in autophagy-induced myofibroblast differentiation. Exposing fibroblasts to N-acetyl-cysteine, a ROS chelator, during serum starvation decreased the expression of senescence and myofibroblast differentiation markers. NAC also inhibited the phosphorylation of AKT serine 473, a MTORC2 target, establishing the importance of ROS in fuelling MTORC2 activation. Collectively, our results identify ROS production in association with sustained autophagy as novel inducers of MTORC2 signaling which in turn activates concomitantly senescence and myofibroblast differentiation.

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-066

GOUT AFTER LIVING KIDNEY DONATION: A MATCHED COHORT STUDY

Ngan Lam (1), Eric McArthur (2), Joseph Kim (3), Ramesh Prasad (3), Krista Lentine (4), Peter Reese (5), Bertram Kasiske (6), Charmaine Lok (3), Liane Feldman (7), Amit Garg (1)
(1) Western University
(2) Institute for Clinical Evaluative Sciences
(3) University of Toronto
(4) Saint Louis University
(5) University of Pennsylvania
(6) University of Minnesota
(7) McGill University

Background:
In the general population, a high serum uric acid concentration is a risk factor for gout. It is unknown whether donating a kidney increases a living donor's risk of gout, as the serum concentration of uric acid rises in donors after nephrectomy.

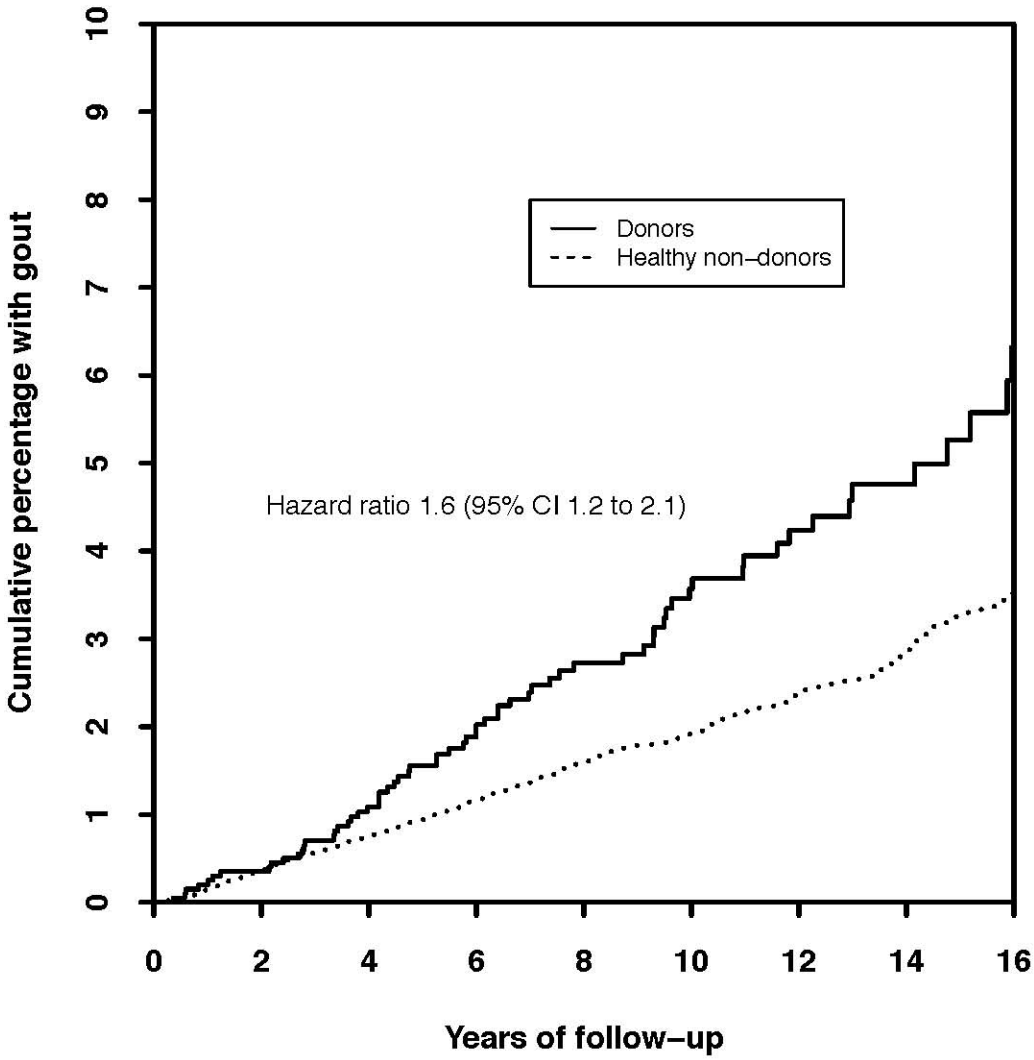
Methods:
We conducted a retrospective matched cohort study using healthcare databases to assess living kidney donors who donated between 1992 and 2010 in Ontario. Matched non-donors were selected from the healthiest segment of the general population. The primary outcome was the time to a diagnosis of gout. The secondary outcome in a subpopulation was receipt of medications typically used to treat gout.

Results:
A total of 1988 donors and 19,880 matched non-donors were followed for a median of 8.4 years (maximum 20.8 years). Donors compared to non-donors were more likely to be diagnosed with gout (3.4% vs. 2.0%; 3.5 vs. 2.1 events per 1000 person-years; hazard ratio 1.6; 95% CI, 1.2-2.1; P<0.001). Similarly, donors compared to non-donors were more likely to receive a prescription for allopurinol or colchicine (3.8% vs. 1.3%; odds ratio 3.2; 95% CI, 1.5-6.7; P=0.002).

Conclusions:
These findings suggest that donating a kidney modestly increases an individual's absolute long-term incidence of gout.

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

P-066



No. of persons at risk

Donors	1988	1974	1759	1408	1091	844	631	422	248
Healthy non–donors	19880	19619	17209	13670	10525	8145	6039	4118	2432

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-067

HIGHER SERUM CONCENTRATION OF 1,25DIHYDROXYVITAMIN D IS ASSOCIATED WITH A DECREASED RISK OF ACUTE REJECTION IN RENAL TRANSPLANT RECIPIENTS

Deborah Zimmerman (1), Andrew House (2), Joseph Kim (3), Booth Ronald (1), Tinghua Zhang (1), Ramsay Tim (1), Gregory Knoll (1)
(1) University of Ottawa
(2) Western University; London Health Sciences Centre
(3) University of Toronto; Toronto General Hospital, University Health Network

Introduction
There are known risk factors for acute rejection (e.g. high PRA) but individual prediction remains imperfect. Immune modifiers such as Vitamin D may be important. In this prospective cohort study we determined the association between 1,25 dihdroxyvitamin D [1,25(OH)D_3] and acute rejection.

METHODS
Adult patients were recruited immediately post renal transplant from 3 centres. Potential risk factors for rejection and immunosuppression were collected at baseline. 1,25(OH)D_3 was measured at baseline, 3 and 6 months post-transplant.

The association between 1,25(OH)D_3 as a time varying continuous variable was modeled using Cox regression with time to biopsy-proven acute rejection as the dependent variable (primary endpoint). Significant univariate predictors of acute rejection were included in a multivariate model. A sensitivity analysis of 1,25(OH)D_3 by tertiles was performed.

RESULTS
Acute rejection occurred in 48/327 (14.7%) patients. Higher 1,25(OH)D_3, IVIG use, PRA Class 1 (≤20%) and HLA mismatches (≤3) were associated with a decreased risk of rejection; male sex and thymoglobulin use were associated with an increased risk. In multi-variable analysis, 1,25(OH)D_3 remained significant as a continuous variable [0.995 (0.993-0.996); p<0.0001]. When examined categorically, the lowest [2.132 (1.006-4.520); p=0.045] and middle tertiles [2.296 (2.041-2.583); p<0.0001] of 1,25(OH)D_3 were associated with a greater risk of acute rejection compared to the highest tertile.

DISCUSSION
Increasing 1,25(OH)D_3 concentration was associated with a decreased risk of acute rejection. The use of 1,25(OH)D_3 at appropriate doses may represent an additional treatment option for patients post renal transplant to reduce the risk of acute rejection but this strategy should be tested in a randomized controlled trial before it can be widely adopted.

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-068 - Withdrawn

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-069

FRAILTY AND PHYSICAL FUNCTION IN ADVANCED CHRONIC KIDNEY DISEASE: FINDINGS FROM THE CANFIT STUDY

Ranveer Brar (1), Simon Walker (1), Brett Hiebert (2), Frederick Eng (1), Paul Komenda (1), Claudio Rigatto (1), Bhanu Prasad (3), Clara Bohm (4), Rakesh Arora (2), Leroy Storsley (4), Navdeep Tangri (1)
(1) Seven Oaks General Hospital
(2) St. Boniface General Hospital
(3) Regina General Hospital
(4) Health Sciences Center

Background:
Chronic kidney disease (CKD) and frailty are common in the elderly. Frailty encompasses physical and cognitive domains that can be measured. Co-existing CKD and frailty is associated with poor outcomes such as worsening disability, kidney failure and death. The Short Physical Performance Battery (SPPB) measures physical domains of frailty and has been extensively validated in the general population**.**

Objective:
The purpose of this study was to describe prevalence of frailty defined by SPPB in patients with advanced CKD (eGFR ≤ 30ml/min)**.**

Methods:
We approached all patients with CKD Stages G4-G5 who attended multidisciplinary clinics at four tertiary care centers. We excluded patients who did not speak English or were unable to provide informed consent. We collected demographic variables, physical examination measurements and laboratory values.

Results: We studied 299 patients. The median age was 69 years (Interquartile Range [IQR] = 58.0 - 79.0), and 115 patients were female (39.5%). The mean eGFR was 19.0 mL/min/1.73m2. 161 (53.9%) patients had a SPPB score of < 10 and were defined as frail. Older age, female gender, and comorbidities such as diabetes, heart disease and cerebrovascular diseases were associated with frailty. Risk of frailty was 8 fold higher in patients with diabetes, after adjustment for age, gender, eGFR, and multiple comorbid conditions and laboratory risk factors.

Conclusion: Frailty, as defined by the SPPB, is common in patients with advanced CKD, particularly in patients with diabetes. Longitudinal studies on the interaction between diabetes, frailty and all-cause mortality in CKD are needed.

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-070

A NEW FORMULA TO ESTIMATE GFR IN OBESE YOUTH; THE ICARE STUDY EQUATION

Allison Dart (1), Atul Sharma (1), Jonathan McGavock (1), George Schwartz (2), Dan Chateau (1), Tom Blydt-Hansen (3)
(1) University of Manitoba
(2) University of Rochester
(3) University of British Columbia

Background:
The validity of current eGFR formulas in youth with diabetes and/or obesity remains unclear. A reliable eGFR formula in these at risk populations is warranted.

Methods:
This cross sectional study evaluated equations to estimate GFR using iohexol-GFR (iGFR) in 100 youth with type 2 diabetes and 26 obese controls from the iCARE (***I***mproving renal ***C***omplications in ***A***dolescents with type 2 diabetes through ***RE***search) cohort study. Twenty percent of the cohort was withheld as a test dataset. We performed linear regression analyses and assessed goodness of fit to develop the best formula based on body size, sex, creatinine, urea, +/- cystatin C.

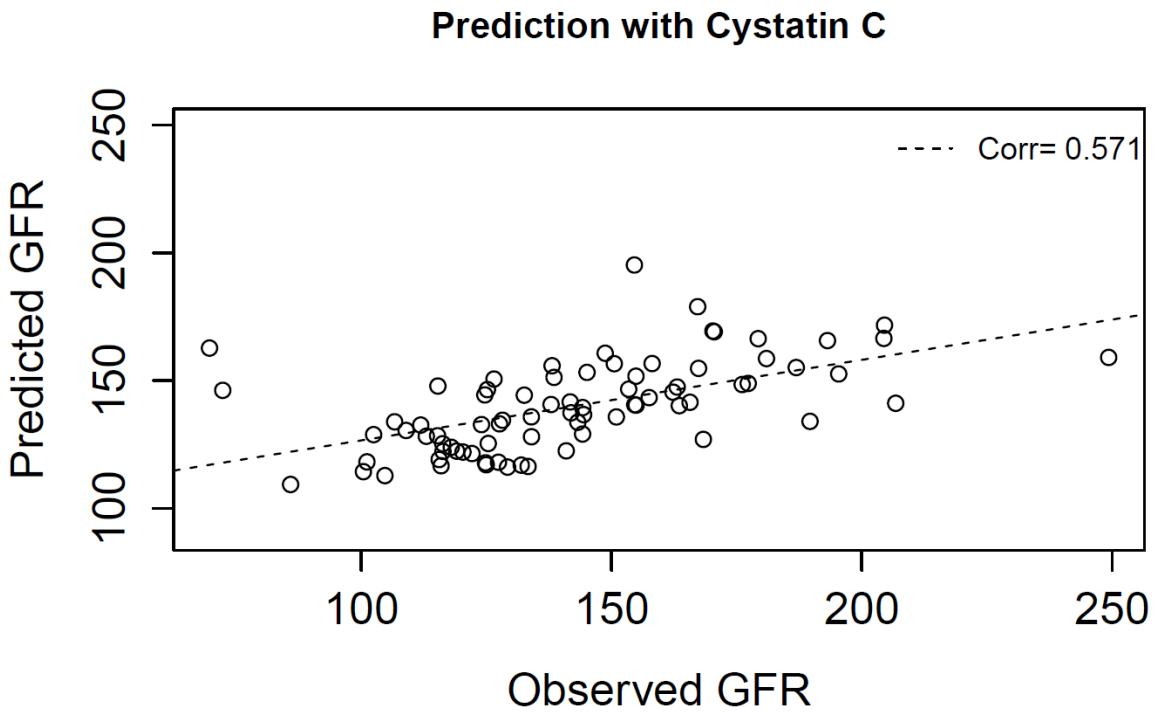
Results:
The mean age of the cohort was 15.4 $\pm$ 2.4 yrs, and 61% were female. The mean BMI z-score was 2.5 $\pm$ 1.2 and the mean iGFR was 144.0 $\pm$ 30.9 ml/min/ 1.73m2. The best adjusted eGFR formula (ml/min/1.73m2) was $98.3 * 0.908^{Sex} * (Height/Creat)^{0.397} / BSA^{0.182}$

The iCARE equation resulted in 78.3% of eGFR's within 10% of measured iGFR and 95.6% within 30%. The Bland-Altman 95% limits of agreement in the external dataset were -44.4 to 53.0 (bias= -4.3), and correlation was 0.62. The addition of cystatin C resulted in limits of agreement of LOA -53.5 to 48.7 (bias=-2.4) and correlation = 0.57 (Figure 1).

Conclusions:
The iCARE equation provides an improved eGFR in obese youth with hyperfiltration. Further studies are warranted to evaluate within-subject variability and applicability to lower GFR's and other populations.

P-070

Figure 1: Estimated GFR by the iCARE equation, as compared with measured iGFR in ml/min/1.73m2



Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-071

EARLY RESULTS OF THE PAN-CANADIAN ABLE STUDY: A PROSPECTIVE RENAL OUTCOMES COHORT STUDY OF CHILDREN WITH CISPLATIN

Kelly McMahon (1), S. Rod Rassekh (2), Maury Pinsk (3), Tom Blydt-Hansen (2), Michael Zappitelli (1)
(1) McGill University Health Centre
(2) University of British Columbia
(3) University of Alberta

Background:
Cisplatin causes acute kidney injury (AKI) and may lead to late chronic kidney disease (CKD) or hypertension. ABLE is a Canada-wide project evaluating late child cancer treatment effects and biomarkers of late toxicity, including nephrotoxicity.

Objective:
Describe renal effects of cisplatin in the first group of children enrolled in the ABLE cisplatin nephrotoxicity study.

Methods:
Inception cohort of 150 children receiving cisplatin (8 centers). Exclusion: advanced CKD. Recruitment: near cancer diagnosis. Protocol: 2 “acute” visits [AV] during cisplatin (pre-infusion, post-infusion, discharge sampling); 3 “follow-ups” [FU] (3 months, 1, 3 years post-treatment). Measures: serum creatinine (SCr), Cystatin C, AKI biomarkers (AV, not described), albumin-creatinine ratio, blood pressure (FU). Outcomes: AKI by KDIGO (AV), low glomerular filtration rate, microalbuminuria, hypertension (FU).

Results:
Data available from 23/46 recruited (age = 7.2±5.5 years, AV1 and AV2 hospital stay 12±24 and 11±28 days, respectively; 11(48%) males. Diagnoses: osteosarcoma (N=5), neuroblastoma (N=7), medulloblastoma (N=5), other (N=6). No patients developed KDIGO SCr-AKI. 28% and 33% developed renal tubular dysfunction during AV1 and AV2, respectively. Shown in Table, serum phosphate, potassium, and magnesium abnormalities were common during therapy. At 3 months, of data available, 4/8 patients(50%) had microalbuminuria, 1/7(14.3%) had hypertension. 1/23 patients died. Biomarker results are pending.

Conclusion:
Renal tubular dysfunction during cisplatin treatment is common, despite lack of SCr rise, suggesting that cisplatin-AKI definition should include renal tubular measures. ABLE will be the largest follow-up of children treated with cisplatin. Data acquired will help clarify the phenotype of AKI and CKD due to cisplatin therapy.

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

P-071

Table: Electrolyte abnormalities during Acute Visit (AV) 1 and 2 cisplatin infusions. AV1 refers to first or second cisplatin cycle and AV2 refers to the third or later cisplatin cycle of treatment plan.

	Acute Visit 1 (N = 23)			Acute Visit 2 (N = 17)		
	Pre	Post	Discharge	Pre	Post	Discharge
Serum P (mean ± SD mmol/L)	1.60 ± 0.25	1.35 ± 0.28*	1.21 ± 0.24*	1.60 ± 0.23	1.28 ± 0.36*	1.24 ± 0.44*
N (%) with Low Serum P	0/18 (0%)	3/18 (16.7%)	4/18 (22.2%)*	0/11 (0%)	3/12 (25%)	2/12 (16.7%)
Serum K (mean ± SD mmol/L)	4.26 ± 0.32	4.56 ± 0.37*	4.20 ± 0.44	4.25 ± 0.45	4.45 ± 0.36	4.56 ± 0.92*
N (%) with Low Serum K	0/18 (0%)	0/18 (0%)	1/18 (5.6%)	1/11 (9.1%)	0/12 (0%)	0/12 (0%)
Serum Mg (mean ± SD mmol/L)	0.83 ± 0.07	1.01 ± 0.17*	0.91 ± 0.18	0.81 ± 0.08	1.00 ± 0.22*	0.88 ± 0.15
N (%) with Low Serum Mg	1/18 (5.6%)	0/18 (0%)	1/18 (5.6%)	1/11 (9.1%)	1/12 (8.3%)	1/12 (8.3%)
N (%) with Renal Tubular Dysfunction[1]	5/18 (27.8%)			4/12 (33.3%)		

[1]Renal Tubular Dysfunction defined as having one or more low post or discharge serum P or K or Mg
*Indicates significantly different from pre-infusion result ($p<0.05$)

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-072

EPIDEMIOLOGICAL STUDY ASSESSING THE BURDEN OF ILLNESS OF AUTOSOMAL DOMINANT POLYCYSTIC KIDNEY DISEASE (ADPKD) IN CANADA

Philip McFarlane (1), Emmanouil Rampakakis (2), Julie Vaillancourt (2,3)
(1) University of Toronto St. Michael's Hospital
(2) JSS Medical Research
(3) McGill University

BACKGROUND:
ADPKD is the most common heritable renal disease and the fourth-leading cause of end-stage renal disease (ESRD) in adults. Despite its important burden to patients and society, information concerning the impact of ADPKD on health-related quality of life (HRQoL), absenteeism and productivity is scarce.

OBJECTIVES:
To describe the incidence of ADPKD clinical manifestations, their related healthcare utilization, and the impact of ADPKD on patient HRQoL, absenteeism and productivity.

METHODS:
This is a Canadian multicenter, observational, single cohort, retrospective chart review study. All patients were 18 years of age or older at the time of ADPKD diagnosis and had been managed by the participating investigator for at least 24 months prior to study inclusion. Data were extracted from ADPKD patients' charts and cover a period of 24 months prior to the last patient visit.

RESULTS:
Among the 216 charts analyzed, the majority (n=116; 53.7%) of patients were females and mean (SD) age at ADPKD diagnosis was 41.0 (13.7) years. During the observation period, the most frequently reported ADPKD clinical manifestations were hypertension (63.0%), non-renal cysts (41.2%), proteinuria (29.6%), anemia (25.0%), hematuria (19.0%), and renal pain (12.6%). Seventeen percent (17.1%) of patients visited an emergency department (mean number of visits: 2.0) and 16.3% were admitted to a hospital (mean length of stay: 18.8 days). Of the 125 patients (57.9%) that were employed, ADPKD had at least a moderate impact (≥ 26% decline) on work-related productivity and absenteeism in 12.8% of patients, as per the treating physician's assessment. Similarly, in the opinion of the treating physicians, ADPKD was associated with considerable impairment in HRQoL with patients at more advanced disease stage at diagnosis experiencing lower HRQoL (p=0.026).

CONCLUSIONS:
ADPKD is associated with significant disease burden in Canada including a high incidence of renal clinical manifestations, healthcare utilization and work disability.

AGM 2015
MONTREAL, QC

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-073

A COMPARATIVE SURVEY ANALYSIS OF HEMODIALYSIS OUTPATIENTS BETWEEN THEIR REPORTED GOALS OF CARE AND THEIR CARE PROVIDERS PERCEPTIONS

Ariel Lefkowitz (1), Blair Henry (1), Jennifer Bottoms (2), Jeff Myers (1), David Naimark (2)
(1) University of Toronto
(2) Sunnybrook Health Sciences Centre

Background
Good practice requires that health care providers (HCPs) clarify patients' goals of care (GoC). GoC conversations are particularly important in caring for hemodialysis patients, who live with an incurable, life-limiting illness. It is unclear whether HCPs caring for such patients have a good understanding of the GoC of their patients.

Objective
To determine whether a discrepancy exists between dialysis patients' reported GoC across seven domains and those perceived by their HCPs.

Methods
We incorporated seven GoC domains into two surveys: one for hemodialysis patients and another for their HCPs (primary physicians, nurses, social workers, pharmacists, and dietitians), at an outpatient hemodialysis unit. Agreement was assessed with kappa statistics. Factors influencing agreement were assessed with logistic regression in a secondary analysis.

Results
Of 173 invited to participate, 137 patients completed the surveys, and their HCPs completed 623 corresponding surveys. Descriptive statistical analysis found that 76.9% of HCPs reported providing no prognostic information to their patients and that patients are significantly more optimistic about their prognosis than their HCPs ($p<0.001$). However, >70% of patients thought GoC discussions are important and would feel comfortable discussing GoC with their physician. No statistically significant concordance (better than chance) was found between patients' reported GoC and the perceptions of their HCPs (kappa scores all <0.25). Patient factors associated with even poorer concordance with their HCPs' perceptions included: more time elapsed since beginning dialysis, and choosing "Be Cured" as the most important goal for being on dialysis ($p<0.001$).

Conclusions
HCPs perceptions of GoC did not agree with patients' reported GoC. This finding supports the importance of increasing the frequency and efficacy of GoC discussions within this population, bolstered by patients' willingness to do so. Further work will require the design and validation of interventions to improve HCPs understanding of their patients' GoC.

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-074

THE ALBERTA VASCULAR RISK REDUCTION COMMUNITY PHARMACY PROJECT: RXEACH

Brenda Hemmelgarn (1), Ross Tsuyuki (2), Yazid Al Hamarneh (2), Craig Curtis (3), Carlee Balint (3), Charlotte Jones (4)
(1) University of Calgary
(2) University of Alberta
(3) Foothills Medical Center
(4) Univeristy of British Columbia

Background: Cardiovascular disease (CVD) is the most common cause of death among patients with chronic kidney disease (CKD). Modifiable risk factors, including smoking, hypertension, hyperlipidemia, diabetes, physical inactivity, and obesity contribute to the majority of CVD cases; however, many treatment gaps have been reported. Community pharmacists are frontline primary healthcare professionals who are well positioned to identify patients at high risk for CVD and assist in disease management.

Objectives: To evaluate the effect of community pharmacy-based case finding and intervention in patients at high risk for cardiovascular events (including patients with CKD) on reduction in risk for major cardiovascular events.

Methods: Community pharmacists across Alberta will identify and randomize eligible patients (adults with diabetes, CKD, vascular disease, Framingham risk score > 20%) with at least one uncontrolled risk factor to advanced care (intervention) or usual care. Advanced care includes a structured medication review, laboratory evaluation, CVD risk assessment and patient education. Pharmacists will prescribe, adapt, or recommend medications and lifestyle management as necessary to achieve therapeutic targets. Usual care group will receive standard care from their pharmacist and family physician. The primary outcome is the difference in change in estimated cardiovascular risk between groups at 3 months, with secondary outcomes including difference in change in LDL, BP, HbA1c and smoking cessation. A sample size of 1180 patients will allow detection of a 15% difference in the relative reduction of CV risk. Currently 459 patients have been enrolled, 122 (27%) with CKD.

Results: The results of this trial are expected by December 2015.

Discussion: The RxEACH project is the first RCT addressing global cardiovascular risk reduction in a community pharmacy setting, and a unique collaboration between Alberta Health, Alberta Health Services, University of Alberta, University of Calgary, industry, and the provincial renal programs.

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-075 - Withdrawn

AGM 2015
MONTREAL, QC

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-076

POTENTIAL ROLE OF KIDNEY INJURY MOLECULE-1 (KIM-1) DURING SIMULATED WARM AND COLD RENAL ISCHEMIA

Lakshman Gunaratnam (1,2), Patrick Anderson (1), Xizhong Zhang (2)
(1) Western University
(2) London Health Sciences Centre
(2) London Health Sciences Centre

Background:
Ischemia-reperfusion injury during renal transplantation can lead to delayed graft function and poor graft outcomes. During ischemic acute kidney injury, upregulation of the transmembrane protein receptor Kidney Injury Molecule-1 (KIM-1) on proximal tubular epithelial cells (PTECs) allows binding to phosphatidylserine on apoptotic cells and their subsequent engulfment by PTECs. We have previously shown that KIM-1 protects against tissue damage during ischemic AKI. Given that renal KIM-1 expression is also increased after kidney transplantation, we sought to determine if KIM-1 upregulation occurs during ex vivo cold preservation, and whether this is protective against cell death.

Methods:
Human Kidney cells (HK-2) capable of endogenous KIM-1 expression were subjected to either warm hypoxic (37,1% O2 in media) or cold hypoxic conditions (4°C 1% O2 in UW solution). To simulate reperfusion following cold ischemia, cold hypoxic cells were additionally subjected to normoxic rewarming (37°C, 5% CO2 in media). Control cells were cultured in media at 37°C 5% CO2. KIM-1 expression was measured using Western Blot. To simulate cold preservation, C57BL/6 wild-type and KIM-1 knockout mouse kidneys were perfused [italics]ex vivo[/italics] with cold UW solution and either fixed immediately (control), or after 48 hours incubation at 4°C in UW solution before tissue fixing and staining (H&E). Apoptotic cells were detected using TUNEL assay. Tissue damage was scored by a blinded pathologist using a standard scale.

Results:
Endogenous expression of KIM-1 was increased in response to warm and cold hypoxic conditions in HK-2 cells. KIM-1 expression was similarly increased during conditions of cold hypoxia followed by normoxic rewarming. Apoptotic cell death as measured by TUNEL assay and tissue damage scores after cold preservation were not different between renal grafts expressing and not expressing KIM-1.

Conclusion:
KIM-1 is upregulated in PTECs during organ retrieval and preservation, but is not protective against tissue damage during cold preservation.

AGM 2015
MONTREAL, QC

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-077

EVALUATION OF A MULTIFACETED DISSEMINATION STRATEGY FOR THE UPTAKE OF AN ON-LINE CLINICAL PATHWAY FOR CHRONIC KIDNEY DISEASE IN PRIMARY CARE

Maoliosa Donald (1), Kerry McBrien (1), Wes Jackson (1), Braden Manns (1), Marcello Tonelli (1), Kailash Jindal (2), Nairne Scott-Douglas (1), Meghan Elliot (3), Selina Allu (1), Sarah Gil (1), Brenda Hemmelgarn (1)
(1) University of Calgary
(2) University of Alberta
(3) University of Toronto, St. Michael's Hospital

Background*:*
Guidelines for chronic kidney disease (CKD) are available, however their uptake in routine clinical care is challenging. Using the Knowledge-to-Action framework the Northern and Southern Alberta Renal Programs, primary care physicians and other primary care providers developed an on-line clinical pathway for adults with CKD (www.CKDpathway.ca) to aid in diagnosis, management and referral. The pathway was implemented November 5, 2014. A multifaceted dissemination strategy was developed to enhance uptake in primary care.

Objectives*:*
To assess the effectiveness of a multifaceted dissemination strategy on the uptake of an on-line clinical pathway for adults with CKD in primary care.

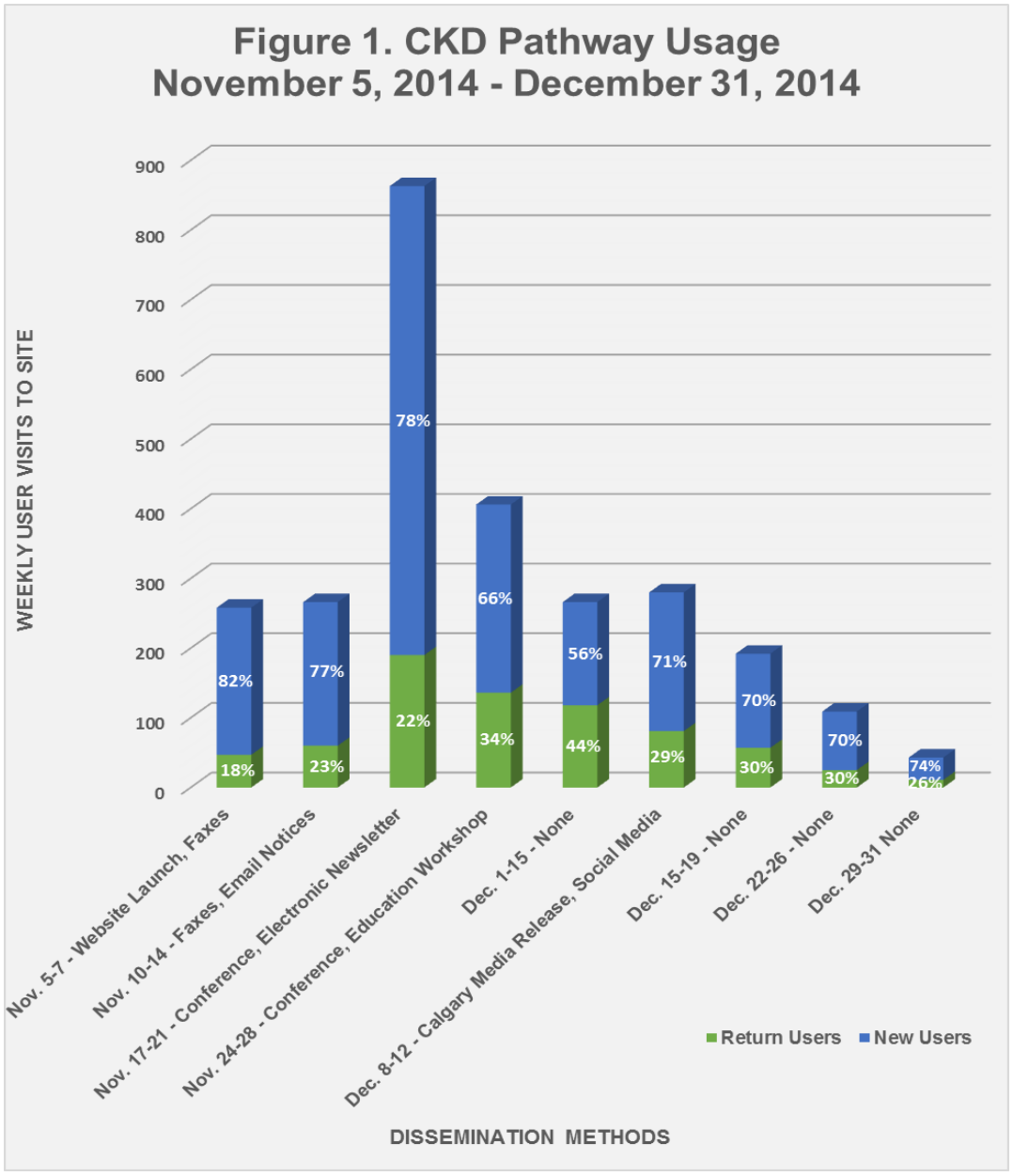
Methods*:*
Features of the dissemination strategy included identifying key messages, target audiences, and employing a variety of dissemination methods. Website analytics (Google Analytics™) were used to assess uptake during the period November 5 to December 31, 2014. Key metrics included: audience (visits, new and returning users, demographics); traffic sources (how users found website); page tracking (session duration, content popularity); and in-page analysis (how visitors navigate the website).

Results*:*
There were 2,246 visits during the two-month period, including 93% from Canada and 70% from Alberta. Weekly visits, by dissemination method and new versus returning users, are represented in Figure 1. The most popular pages viewed were: home page (43%), diagnosis page (17%), and medical management page (14%).

Conclusions*:*
Uptake of the pathway was greatest following presentations at conferences, education workshops and electronic newsletters. These preliminary results suggest a multifaceted and ongoing dissemination strategy is needed to ensure uptake of tools in primary care.

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

P-077



AGM 2015
MONTREAL, QC

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-078

ENDOTHELIN A RECEPTOR BLOCKADE REDUCES VASCULAR CALCIFICATION IN RATS WITH CHRONIC KIDNEY DISEASE AND MINERAL DISORDERS

Mohsen Agharazii, Alexandra Gauthier-Bastien, Roth-Visal Ung, Fabrice Mac-Way, Darren Richard, Richard Larivière
CHU de Québec

Background:
Increased risk of cardiovascular disease in patients with chronic kidney disease (CKD) has been related to vascular stiffness and isolated systolic hypertension as a result of vascular calcification due to mineral metabolism abnormalities. Using a rat model of CKD with vascular calcification, we found a marked increase in endothelin-1 (ET-1) production in the media of calcified vessels suggesting a role for ET-1.

Objectives:
This study was designed to investigate the effect of the ET_A receptor antagonist atrasentan on vascular calcification and hemodynamic parameters in CKD rats with mineral metabolism abnormalities.

Method:
CKD was induced in Wistar rats by renal mass ablation and mineral metabolism abnormalities by a calcium/phosphate-rich diet and vitamin D supplementation (Ca/P/VitD) that lead to vascular calcification. A group of CKD rats given Ca/P/VitD was treated with the ET_A receptor antagonist atrasentan (10 mg/kg/day) for 6 weeks. Hemodynamic parameters were determined by vessels catheterisation in anesthetised animals and the thoracic aorta was harvested for the assessment of calcification.

Results:
Treatment of CKD+Ca/P/VitD rats with the ET_A antagonist atrasentan significantly reduced systolic blood pressure (109±12 vs. 156±8 mmHg, $p<0.05$), pulse pressure (23±3 vs. 60±9 mmHg, $p<0.05$) and carotid-femoral pulse wave velocity (481±43 vs. 690±28 cm/s, $p<0.01$). These hemodynamic effects of ET_A receptor blockade were associated with reduced vascular calcification assessed both by Micro-CT scanning (0.12 ±0.03 vs. 0.24 ±0.04 AU, $p<0.05$) and von Kossa staining (1.9±1.1 vs. 10.6±2.5 AU, $p<0.05$).

Conclusion:
Our study shows for the first time that ET_A receptor blockade reduces vascular calcification and the associated hemodynamic abnormalities in this model of CKD-related vascular calcification.

AGM 2015
MONTREAL, QC

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-079

INSULIN RESISTANCE AND CARDIAC AUTONOMIC NERVOUS ACTIVITY IN HEALTHY WOMEN AND MEN IN RESPONSE TO ANGIOTENSION II CHALLENGE

Luke Rannelli, Sharanya Ramesh, MacRae Jennifer, Michelle Mann, Brenda Hemmelgarn, Darlene Sola, Sofia Ahmed
University of Calgary

Introduction:
Dysfunctional cardiac autonomic tone (CAT) is characteristic of insulin resistance and has been shown to be a risk factor for end-stage renal disease as well as cardiovascular mortality. In women, insulin resistance states such as, diabetes is associated with greater CAT dysfunction in women compared to men. We sought to evaluate the association between insulin resistance and heart rate variability, a validated marker of cardiovascular risk, in healthy women and men.

Methods:
27 female and 21 male healthy, normotensive, non-diabetic, non-obese subjects were studied in a fasting high-salt state. Measures of insulin resistance (fasting insulin, hemoglobin A1c (HbA1c), homeostatic model assessment (HOMA-IR) and the quantitative insulin sensitivity check index (QUICKI) were determined for each subject. Heart-rate variability was calculated by spectral power analysis [low-frequency (LF) sympathetic modulation, high-frequency (HF) parasympathetic/vagal modulation, and LF:HF measure of overall cardiosympathovagal balance] at baseline and in response to 60 minutes of angiotension II (AngII) infusion.

Results:
All measures of insulin resistance (glucose, insulin, HbA1c, HOMA-IR, QUICKI) were within normal range for both sexes. In women, there was a trend present between increasing serum insulin levels and increasing cardiosympathetic tone (LF:p=0.1; p=0.07 multivariate analysis) as well as increasing serum insulin levels and decreasing cardioprotective vagal tone (HF:p=0.16; p=0.07 multivariate analysis), overall resulting in an unfavourable CAT profile in response to AngII. In contrast, men demonstrated a negative association between insulin levels and the LF (p=0.02) and cardiovagal (p=0.009) response to the physiological stressor (LF:HF:p=0.049, women vs men). Similar trends were also seen with QUICKI and HOMA-IR, however the different responses from either sex were not statistical significance.

Conclusion:
Among healthy subjects, increasing insulin resistance was associated with an undesirable cardiac autonomic profile in women but not men. Further studies investigating the pathophysiology of insulin resistance in kidney and cardiovascular disease in women are warranted.

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-080

COMPARISON OF AN INTENSIVE VERSUS STANDARD HEMODIALYSIS CENTRAL VENOUS CATHETER DYSFUNCTION PROTOCOL

Jo-Anne Wilson (1,2), Paula Mossop (1), Karthik Tennankore (1,2), Christine Dipchand (1,2), Sarah Drost (2), Niall Sheehy (1), Steven Soroka (1,2)
(1) Capital Health
(2) Dalhousie University

Background:
Hemodialysis (HD) central venous catheters have complications including thrombosis and infection. Catheter locking solutions such as recombinant tissue plasminogen activator (rt-PA) are used to treat and prevent clotting of the catheter during HD treatments and during the interdialytic period. Evidence to guide the use of rt-PA is limited.

Objective:
To compare the effectiveness and cost of an intensive versus a standard catheter dysfunction protocol for rt-PA in HD patients.

Methods:
A retrospective cohort study of consecutive dialysis patients over one year is being conducted at a HD unit using both catheter dysfunction protocols. In the intensive protocol, rt-PA intervention is administered to all catheters based on blood flow and or line reversal. In the standard protocol, rt-PA intervention is based on blood flow. All adults undergoing HD with a tunneled catheter will be included. Outcomes include: 1) incidence rate of rt-PA use for catheter malfunction, 2) rate of catheter related bacteremia per 1000 catheter days and 3) cost of rt-PA per total line day (TLD).

Results:
Interim analysis demonstrated that22 and 27 patients (over three months) were managed by the intensive and standard catheter dysfunction protocols, respectively. The incidence rate of rt-PA use was 83 days/1000 TLD (intensive) versus 48 days/1000 TLD (standard) (incidence rate ratio 1.71, 95% CI 1.34-2.19, P<0.001). The rate of bacteremia was 0.6 and 0.5 per 1000 catheter days for the intensive and standard protocols, respectively (p=0.88). The cost of rt-PA was $7.88 and $ 7.40 per TLD for the intensive and standard groups. 5 and 7 lines changes occurred in the intensive and standard groups.

Conclusion:
Preliminary results suggest that use of a standard catheter dysfunction protocol results in fewer days of exposure to rt-PA compared to the intensive protocol.

AGM 2015
MONTREAL, QC

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-081

THE WATSON FORMULA OVERESTIMATES THE UREA DISTRIBUTION VOLUME AMONG HEMODIALYSIS PATIENTS WITH HIGHER FAT CONTENT AND UNDERESTIMATES KT/V IN PATIENTS WITH LESS MUSCLE STRENGTH

Nazanin Noori, Arti Sharma Parpia, Ron Wald, Ann Jones, Mimi Cheng, Ramona Aslahi, Marc Goldstein
St. Michael's Hospital

Background:
An accurate estimation of total body water(TBW),or the Volume(V) variable in the Kt/V equation, is essential for the evaluation of hemodialysis(HD) adequacy. The Watson formula is most commonly employed for this purpose but entails certain assumptions that may lead to inaccurate estimates. The Body Composition Monitor (BCM, Fresenius, Bad Homburg, Germany),which has been validated against gold standard employs bioimpedance spectroscopy to provide an accurate determination of TBW.

Objectives:
To compare TBW estimates generated by Watson formula and the BCM and identify the characteristics of patients in whom volume results from these two methods are most discrepant.

Methods:
We evaluated 61 prevalent HD patients at a single centre in Toronto, Canada. As surrogates of fat mass we measured biceps, triceps, suprailiac and subscapular skinfold thicknesses and waist and mid-arm circumference(MAC).As surrogates of muscle mass handgrip strength was measured with a dynamometer and mid-arm muscle circumference (MAMC) was calculated as follows: MAMC=MAC-3.142×triceps-skinfold thickness

Results:
We categorized patients into 2 groups based on the magnitude of the discrepancy between the Watson formula and BCM in measurement of TBW and KT/V, respectively (Table-1).After adjustment for age and vintage, patients in the group which Watson formula overestimates TBW more than 5 kg had significantly higher surrogates of fat mass. Handgrip strength(surrogate of muscle bulk) was higher in group which Watson formula underestimatef Kt/V more than 0.2.

Conclusions:
Estimates derived from the Watson formula overestimated TBW and underestimated Kt/V. These discrepancies were more prominent in patients with more fat and less muscle mass. In conclusion Kt/V results, in which V is estimated by the Watson formula, must be utilized with caution, especially in obese patients.

Table-1: Comparison of anthropometric measurements between two groups (p values are adjusted for age and vintage)

	Watson formula overestimates TBW by <5 kg (n=43)	Watson formula overestimates TBW by >=5 kg(n=18)	p
Male(%)	70	55	0.12
BMI(kg/m^2)	25.8±4.9	28.3±5.5	0.07
Triceps skin-fold thickness(mm)	13.8±5.4	17.5±5.6	0.02
Suprailiac skin-fold thickness(mm)	12.4±5.9	15.5±5.9	0.04
Subscapular skin-fold thickness(mm)	17.6±8.8	24.0±9.2	0.02
Waist circumference(cm)	95.1±15.4	102.4±13.6	0.06
Mid-arm circumference(cm)	30.5±4.4	31.4±3.5	0.43
Mid-arm muscle circumference(cm)	26.1±3.8	25.8±3.3	0.81
Hand-grip strength(kg)	20.0±8.2	16.9±8.5	0.24
	Watson formula underestimates Kt/V by <0.2 (n=39)	Watson formula underestimates Kt/V by 0.2(n=22)	p
Male(%)	77	45	0.12
BMI(kg/m^2)	26.1±5.1	27.3±5.3	0.61
Triceps skin-fold thickness(mm)	13.4±5.3	17.5±5.6	0.07
Suprailiac skin-fold thickness(mm)	12.3±5.8	15.2±6.1	0.09
Subscapular skin-fold thickness(mm)	17.9±9.1	22.0±8.9	0.09
Waist circumference(cm)	95.6±16.1	99.7±13.4	0.27
Mid-arm circumference(cm)	30.7±4.3	30.7±3.8	0.97
Mid-arm muscle circumference(cm)	26.5±3.8	25.2±3.4	0.19
Hand-grip strength(kg)	21.5±7.4	14.7±8.4	0.02

AGM 2015
MONTREAL, QC

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-082

ROLE OF FIBROCYTES IN CHRONIC ALLOGRAFT DYSFUNCTION

Peter Margetts, Doug Miller, Limin Liu, Azim Gangji, Christine Ribic
McMaster University

Objectives:
Interstitial fibrosis and tubular atrophy (IF/TA) is often described on renal allograft biopsy and the extent of this condition correlates with transplant prognosis. Fibrocytes are circulating peripheral blood cells identified by surface progenitor markers (ie CD34) and markers of mesenchymal phenotype (intercellular pro-collagen). The role of fibrocytes in chronic allograft dysfunction has not been previously evaluated.

Methods:
This is a single center observational study of patients undergoing a first kidney transplant. Baseline blood was drawn before transplant, 1, 3, 6, and 12 months after transplant. Circulating fibrocyte numbers were assessed by flow cytometry. Peripheral blood mononuclear cells were labeled for cell surface CD45 and intracellular collagen I. Renal function was estimated using MDRD eGFR.

Results:
A total of 33 patients have been recruited and followed to 6 months post transplant. CD45+ Col1+ fibrocytes comprise between 0.01 – 2.7% of the total peripheral leukocytes. There was no significant change in number of circulating fibrocytes from pre-transplant for up to 6 months post-transplant. The change in circulating fibrocyte count from pre-transplant to 3 months correlated with the eGFR at 6 months post transplant ($r=-0.434$, $p=0.027$). Patients who had an increase in circulating fibrocytes from pretransplant to 3 months had worse renal function at 6 months compared to patients whose fibrocyte count decreased (41.2 vs 59.4 ml/min, $p=0.024$). Circulating fibrocyte counts did not correlate with donor age, gender, primary renal disease, or donor type. These results were similar whether we analyzed total fibrocyte count or percentage of fibrocytes in the peripheral leuckocyte population.

Conclusion:
This preliminary study is the first to evaluate circulating fibrocytes post renal transplant. Increased levels of circulating fibrocytes at 3 months post-transplant predicted for worse renal function at 6 months.

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-083

VALIDATION OF KIDNEY TRANSPLANTATION USING ADMINISTRATIVE DATA

Ngan Lam (1), Eric McArthur (2), Joseph Kim (3), Gregory Knoll (4)
(1) Western University
(2) Institute for Clinical Evaluative Sciences
(3) University of Toronto
(4) University of Ottawa

Background:
Administrative data are increasingly being used to assess outcomes in kidney transplant recipients. In this study, we assessed the validity of transplant data in healthcare administrative databases compared to the reference standard of information collected directly from transplant centers.

Methods:
Recipients who received a kidney-only transplant between 2008 and 2011 at one of three major transplant centers in Ontario were included in this study. The data collected from transplant centers were compared to the Canadian Organ Replacement Register (CORR) database, a hospital procedural code from the Canadian Institute for Health Information Discharge Abstract Database (CIHI-DAD), and provincial physician billing claims from the Ontario Health Insurance Plan (OHIP) database. For each source, we counted the number of kidney transplants performed and compared the sensitivity and positive predictive value (PPV) to the reference standard data.

Results:
During the study period, the three centers reported a total of 1112 kidney transplants performed. The probability of identifying kidney transplant recipients in CORR, CIHI, and OHIP, given they were identified by the transplant centers (sensitivity), ranged from 96% to 98%. The probability that the database code correctly identified a transplant recipient (positive predictive value) in CORR, CIHI, and OHIP ranged from 96% to 98%.

Conclusions:
Codes in CORR, CIHI, and OHIP each operate well in the detection of kidney transplant recipients. These data sources can be used to efficiently identify and follow kidney transplant recipients for post-transplant outcomes.

AGM 2015
MONTREAL, QC

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-084

VITAMIN D LEVELS AND POST-TRANSPLANT DIABETES MELLITUS IN KIDNEY TRANSPLANT RECIPIENTS

Joseph Kim (1), Kevin Quach (1), Monica Abdel-Masih (1), Yanhong Li (1), David Gurau (1), Olusegun Famure (1), Michelle Nash (2), Ramesh Prasad (2), Bruce Perkins (3), Paul Yip (1)
(1) Toronto General Hospital, University Health Network
(2) St. Michael's Hospital
(3) Mount Sinai Hospital

Background:
Kidney transplant recipients (KTR) are at an increased risk of developing post-transplant diabetes mellitus (PTDM). In the general population, lower vitamin D levels are associated with an increased risk of type 2 diabetes mellitus. It is unclear whether this link also exists in KTR.

Methods:
This was a multi-center retrospective cohort study of 442 patients who received a kidney transplant between January 1, 2005 and December 31, 2010. Serum samples obtained within one year prior to transplant were retrieved and analyzed for 25-hydroxyvitamin D_3 (25(OH)D) levels. Univariable and multivariable associations between baseline 25(OH)D and PTDM were examined using Cox proportional hazard models.

Results:
The median 25(OH)D level in the cohort was 66 nmol/L. The cumulative probability of PTDM at 12-months in patients with 25(OH)D levels of < 42, 42-64.9, 65-94.9, and > 95 nmol/L were 23.4%, 26.9%, 21.4%, and 15.6%, respectively. A 10 nmol/L decrease in 25(OH)D level was significantly associated with an increased risk of PTDM (hazard ratio 1.07 [95% CI: 1.01, 1.14]). When modelled as quartiles, the hazard ratios (95% CI) for the risk of PTDM were 2.06 (1.11, 3.83), 2.33 (1.31, 4.14), 1.95 (1.09, 3.50) for 25(OH)D groups < 42.0, 42.0-64.9, and 65.0-94.9 nmol/L (vs. ≥ 95.0 nmol/L), respectively.

Conclusions:
Serum vitamin D is an independent predictor of PTDM in kidney transplant recipients. These results suggest that vitamin D replacement should be tested in randomized controlled trials as a potential strategy to reduce the risk of PTDM in KTR.

AGM 2015
MONTREAL, QC

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-085 - Not authorized for posting

You may view the poster on the board.

AGM 2015
MONTREAL, QC

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-086

PROSTAGLANDIN E2 EP3 RECEPTOR MODULATES WATER TRANSPORT IN MOUSE CORTICAL COLLECTING DUCT

Ramzi Hassouneh, Joseph Zimpelmann, Rania Nasrallah, Kevin D. Burns, Richard L. Hebert
University of Ottawa

Background:
Fluid retention and increased blood pressure (BP) are two major complications of diabetes. Prostaglandin E_2 acts within the kidney through its four G-coupled receptors: $EP_{1\text{-}4}$. We postulate that EP_3 regulates blood pressure and extracellular fluid in diabetes by antagonizing water reabsorption in the cortical collecting duct (CCD).

Methods:
8-week old male $EP_3^{-/-}$ and wild-type mice (WT) were injected with streptozotocin (STZ) or vehicle and followed for 3-months. Glomerular filtration rate (GFR) was estimated by FITC-inulin clearance. BP was measured using tail-cuff plethysmography. 24-hour urine was collected using metabolic cages and urine was analyzed. CCD was dissected from 3-5 month old WT mice for *in vitro* perfusions. Net fluid reabsorption (Jv) was measured using ^{3}H-inulin as a volume marker. Tubules were treated with arginine-vasopressin (AVP, 10^{-8}µM) and EP_3 antagonist sulprostone (SLP, 10^{-7}µM).

Results:
The *in vivo* findings are summarized in Table 1.

After establishing a baseline Jv in freshly isolated perfused mouse CCD, AVP was added to the bathing solution, which resulted in an increase in %Jv vs. baseline (69 ± 0.1 %; n = 9; $P < 0.01$ vs baseline). Addition of SLP resulted in a reduction in %Jv vs. baseline (17.8 ± 0.2 %; n=5; $P < 0.05$ vs AVP).

Conclusion:
Both STZ groups exhibit hyperglycemia, glucosuria, and hypertrophied kidneys indicating diabetes. $EP_3^{-/-}$ STZ mice show increased BP, increased body weight, and reduced diuresis with normal water intake relative to WT-STZ suggesting increased fluid retention. In vitro perfusion of mouse CCD suggests that EP_3 reduces AVP-mediated water reabsorption.

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

P-086

Table 1. Physiological parameters of WT and $EP_3^{-/-}$ mice 3-month post STZ or vehicle injection.
N ≥ 5; *P<0.05 versus WT, $^{\#}$P<0.05 versus $EP_3^{-/-}$, $^{\wedge}$P<0.05 versus STZ using one-way ANOVA and Tukey's post-test.

	WT	$EP_3^{-/-}$	STZ	$EP_3^{-/-}$ STZ
Body Weight (g)	30.2 ± 1	34.5 ± 1*	23.6 ± 0.3*	27.1 ± 0.8$^{\#\wedge}$
Kidney Weight (mg/ g BW)	5.79 ± 0.2	5.22 ± 0.2	8.08 ± 0.2*	7.62 ± 0.4$^{\#}$
GFR (µL/min)	211 ± 20	240 ± 10	332 ± 10*	306 ± 40
Plasma Glucose (mM)	9.03 ± 0.4	7.79 ± 0.3	27.5 ± 1*	26.9 ± 1$^{\#}$
Systolic BP (mmHg)	103.9 ± 4	106.9 ± 2	111 ± 7	119.2 ± 6$^{\#}$
Water Intake (mL/24hrs)	4.17 ± 0.4	3.33 ± 0.7	35.5 ± 1*	28.2 ± 3$^{\#}$
Urine Volume (mL/24hrs)	0.57 ± 0.07	0.65 ± 0.06	29.3 ± 2*	18.4 ± 4$^{\#\wedge}$
Urine Osmolality (mOsm/kg)	2580 ± 200	2230 ± 70	915 ± 20*	1030 ± 70$^{\#}$
Urine Analytes (nmol/24hrs)				
Sodium	82.8 ± 0.01	90.0 ± 0.007	683 ± 0.05*	622 ± 0.07$^{\#}$
Potassium	141 ± 0.03	136 ± 0.03	1040 ± 0.03*	925 ± 0.07$^{\#}$
Glucose	2.40 ± 0.0005	1.38 ± 0.0003	4020 ± 0.3*	3540 ± 0.4$^{\#}$

AGM 2015
MONTREAL, QC

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-087

A QUALITATIVE STUDY OF AN INTRADIALYTIC EXERCISE INTERVENTION

Stephanie Thompson (1), Marcello Tonelli (2), Scott Klarenbach (1), Anita Molzahn (1)
(1) University of Alberta
(2) University of Calgary

Background:
Intradialytic exercise (IDE) is associated with improved dialysis adequacy and amelioration of dialysis-related symptoms. However, the adoption of IDE programs into practice is limited, and there is a paucity of evidence on implementation and sustainability.

Objectives:
To determine key components of the exercise intervention and the context that influence IDE program implementation and sustainability.

Methods:
This multi-phase qualitative study was conducted alongside a single-site, pilot randomized controlled trial (RCT) evaluating the feasibility of a semi-supervised IDE program (n=31). Semistructured interviews with knowledge users and stakeholders were conducted prior to study start (administration n=2, hemodialysis unit staff n=7 and patients n=10); during the mid-point of the trial (hemodialysis unit staff n=10), and after RCT participation (RCT participants n=25). We used interpretive description to generate common themes within and across interviews.

Results:
Themes that emerged from the data were social involvement, patient participation, and support. For staff, patient involvement was critical to sustainability. For participants, increased social interaction was a desirable consequence of the IDE and facilitated implementation. Support was a common theme across interviews from all participants. Unit staff reported a lack of support in the form of insufficient resources; this limited their capacity to implement IDE and was often expressed as having “no time” to take a role in the program. RCT participants perceived that staff should express support for the program as part of their role; brief verbal and non-verbal interactions were adequate to convey support. For RCT participants, the main positive effect of the exercise program was the support of the kinesiologist, whose expertise increased confidence in their physical capabilities.

Conclusions:
In this environment, successful implementation and sustainability of IDE was related to perceptions of support. For patients, this took the form of exercise expertise and support by unit staff for patients, and adequate resourcing for staff.

AGM 2015
MONTREAL, QC

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-088

THE ACCURACY OF JVP FOR VOLUME ASSESSMENT IN PERITONEAL DIALYSIS PATIENTS

Michael Garfinkle, James Barton
University of Saskatchewan

Background
The jugular venous pressure (JVP), as determined by examination of the neck veins, is often used in the clinical examination of volume status.

Objectives
Studies evaluating the diagnostic accuracy of the jugular venous pressure are lacking. By using bioimpedance as our reference standard, we aimed to better quantify the accuracy of this exam finding.

Methods
We included adult peritoneal dialysis (PD) patients presenting to our city's outpatient PD clinic who met the following criteria: 1) no ACS history 2) no history of abnormal echocardiogram 3) no history of pulmonary edema 4) no current central line or hemodialysis fistula.

Each patient had their JVP assessed by a senior medical resident using two perpendicular rulers measuring from the sternal angle. A JVP of ≥ 3 cm was deemed a "positive test" for volume overload. Bioimpedance (Fresnius Body Composition Monitor) was then performed to measure the patient's quantitative volume overload (overhydration value ≥ 0.5 L) or volume depletion (value < 0.5 L).

Results
A total of fifteen patients were assessed. Mean age was 57 (SD = 18). Seven patients were found to be overhydrated (range = 1 – 3.4 L) while eight patients were volume depleted (range = -0.4 – 0.4L). The diagnostic sensitivity, specificity, positive and negative likelihood ratios of the JVP were 28% (95% CI: 8 %– 64%), 88% (95% CI: 53 %– 98%), 2.3 (95% CI: 0.3 – 20) and 0.8 (95% CI: 0.5 – 1.4) respectively.

Conclusions
We found no association between the JVP and volume status in outpatient PD patients without heart disease; however, our results are limited by small sample size. Nonetheless, there was good precision around the negative likelihood ratio and it can be stated with some certainty that the absence of an elevated JVP cannot be used to rule-out volume overload in this population.

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-089 - Withdrawn

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-090

PATIENTS WITH CHRONIC KIDNEY DISEASE AND THEIR INTENT TO USE ELECTRONIC PERSONAL HEALTH RECORDS

Tyrone Harrison, James Wick, Sofia Ahmed, Min Jun, Braden Manns, Robert Quinn, Marcello Tonelli, Brenda Hemmelgarn
University of Calgary

Background:
Electronic personal health records (ePHRs) provide access to personal health information to patients, with goals of enhancing self-management and improving outcomes. We sought to understand perceptions of patients with chronic kidney disease (CKD) regarding ePHRs, and characteristics associated with their expressed intent to use an ePHR.

Methods:
Consecutive patients with non-dialysis-dependent CKD attending a multidisciplinary CKD clinic in Calgary, Canada from November 2013 to January 2014 were asked to complete a self-administered paper-based survey. The survey focused on expressed intent to use an ePHR and perceived benefits and concerns about ePHR use. Univariate analysis was used to determine characteristics associated with expressed intent to use an ePHR.

Results:
Overall 67 patients with CKD (76.1% male, 55.6% ≥65 years old) completed the survey, the majority of whom (69.8%) expressed their intent to use an ePHR. CKD patients who were older (≥65 years old) were less likely to intend to use the ePHR as compared to those aged <65 years (OR 0.22, 95%CI: [0.06, 0.78]). Those with post-secondary education (OR 3.31, 95%CI: [1.06, 10.41]) and Internet access (OR 5.70, 95%CI: [1.64, 19.81]) were more likely to use an ePHR. Perceived benefits of ePHR use included greater involvement in their care (50.0%), and better access to lab results (75.8%). Although 41.9% reported concerns about privacy of health information, there was no association between these concerns and intent to use an ePHR. Our results are limited by small study size and single centre location.

Conclusions:
We found that patients with CKD expressed their intention to use ePHRs, and perceive benefits such as personal involvement in their health care and better access to lab results. Larger studies are needed to confirm these associations, and determine whether ePHRs improve outcomes.

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-091

PATIENTS', CAREGIVERS' AND RESEARCHERS' PERSPECTIVES ON RESEARCH PRIORITIES IN ORGAN TRANSPLANTATION IN CANADA.

Marie-Chantal Fortin (1), Julie Allard (1), Samantha Anthony (2), Céline Durand (1), Linda Wright (3), David Hartell (4), Vincent Dumez (5), Marie-Josée Hébert (1), Lori West (6)
(1) Centre de Recherche du CHUM
(2) The Hospital for Sick Children
(3) University Health Network
(4) Canadian National Transplant Research Program
(5) Université de Montréal
(6) University of Alberta

Background:
Involving patients in setting research priorities enhances the quality, relevance and transparency of medical research. Patient engagement is emerging as an integral component of research within the field of medicine. To elicit patient participation and to identify research priorities in organ and bone marrow transplantation and organ donation, we conducted a preliminary workshop with patients, caregivers and researchers in Montreal, Canada in 2014.

Methods:
Patients, caregivers and researchers in basic and clinical science were invited to participate. The discussion was digitally recorded and transcripts were analysed using thematic and content methodology.

Results:
Priorities in research identified by patients and caregivers included: (i) how to improve communication and education of patients and families, (ii) how to improve psychological and social support to patients and families, (iii) how to promote and establish healthy lifestyle habits, (iv) the development of alternatives to organ transplantation; (v) the development of tolerance or anti-rejection drugs that have no adverse effects, (vi) better graft survival, (vii) how to incorporate alternative medicine into organ transplantation and (viii) how to make pregnancy possible or safer after transplantation. Researchers added to these research priorities (ix) how to increase organ donation and (x) how to address cultural issues in organ donation and transplantation (ethnic minorities). Researchers, patients and caregivers were concerned about how to improve knowledge translation and engage patients in research.

Conclusions: One important research priority shared by researchers and patients and caregivers was related to knowledge translation and dissemination as well as how to improve the dialogue between end-users and researchers. These preliminary results will be validated by a large scale survey and a national workshop to be held during Fall 2015. These results will enable the development of a Canadian patient-oriented research strategy in organ transplantation and donation.

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-092

ANTI-ENDOTHELIAL ANTIBODIES IN MONOCLONAL IMMUNOGLOBULIN LIGHT CHAIN DEPOSITION DISEASE

Jennifer Rodrigues (1), Helena Haile Meskel (2), Jeffrey Perl (1), Serge Jothy (1)
(1) St. Michael's Hospital University of Toronto
(2) Rouge Valley Health System

Monoclonal immunoglobulin deposition disease (MIDD) is a rare manifestation of multiple myeloma (MM). Anti-endothelial cell antibodies have been implicated in the pathogenesis of many renal diseases including allograft rejection, systemic sclerosis, and some cases of ANCA associated vasculitis but not plasma cell dyscrasias. Their pathogenic role is thought to be mediated by alterations in adhesion molecule and inflammatory cytokine expression.

We report a case of a 61 year old female who presented with multi-organ failure characterized by congestive heart failure, anemia, and dialysis-dependent acute kidney injury with a creatinine of 363 mmol/L and nephrotic range proteinuria. Serum protein electrophoresis and immunofixation demonstrated an IgG lambda monoclonal protein. Lambda to Kappa serum free light chain ratio was 14, and urine immunofixation revealed Bence-Jones proteins and IgG lambda. Interestingly, anti-endothelial antibody staining was seen on indirect immunofluorescence performed on serum for anti-glomerular basement membrane antibodies (GBM). Bone marrow biopsy confirmed a diagnosis of MM with 30-40% plasma cell infiltration. Renal biopsy was performed demonstrating mesangial expansion, lobular hypercellularity, occasional double-tracking of the glomerular capillary wall, and moderate interstitial fibrosis. Two out of thirteen glomeruli had cellular crescents. Immunofluorescence was positive for IgG 1+ in mesangial areas and 1+ on tubular basement membranes and was negative for IgM, IgA, and C3. Lambda showed 1+ staining of the mesangium and 3+ staining of tubular basement membranes with trace kappa staining. Electron microscopy demonstrated electron dense deposits in the mesangial matrix and the lamina densa of the GBM. Overall, the renal biopsy findings were consistent with light chain MIDD with the unusual presence of a crescentic type of membranoproliferative pattern. This is the first reported case of anti-endothelial antibodies in a patient with MIDD. Further characterization of anti-endothelial antibodies may provide insight into the pathogenesis of MIDD.

AGM 2015
MONTREAL, QC

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-093

UTILIZATION AUDIT OF INTRAVENOUS VANCOMYCIN IN A HEMODIALYSIS UNIT

Angela Mckinnon, Sandy Knezacek, Gail Wilson, Marianne Gulka, Kelly Kizlyk, Joanne Kappel
St. Paul's Hospital, Saskatoon Health Region

Introduction

Many patients on hemodialysis receive vancomycin for various infections. It is important in vancomycin therapy that trough levels are maintained to ensure resolution of infection. We wanted to determine if the current Saskatoon Health Region (SHR) vancomycin dosing protocol (loading dose (LD) of 25mg/kg/maintenance dose (MD) of 500 mg every dialysis) would achieve and maintain adequate trough levels and if vancomycin was being used in appropriate situations.

Methods

We performed 2 retrospective chart reviews. The first review included vancomycin courses from 01/01/12 to 04/25/13 and the second from 01/11/13 to 31/10/14. Two audits were performed because Kidney Health changed from a combination of low flux/high flux dialysers to only high flux dialysers between audits. Data was collected using MIQS (electronic health record for Kidney Health), SHR laboratory database and hemodialysis paper charts. We included patients who received vancomycin within the study period and had at least one corresponding vancomycin level. The following data was abstracted: gender, age, cause of renal disease, weight, dialyser, pathogen, LD, MD, levels and missed doses.

Results

See Table 1

Conclusion

A significant percentage of loading doses were under-dosed in both audits. Missed doses decreased substantially in the second audit likely due to increased awareness by the pharmacist. The percentage of courses with no culture done did not change significantly. The type of dialyser did not affect vancomycin levels significantly. Due to this audit, further quality improvement strategies are being developed to ensure the use of vancomycin in the hemodialysis unit is appropriate and meets current guidelines.

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

P-093

Demographics	Audit 1	Audit 2
Gender	50% Male	67% Male
Mean Age	57.85	57.14
Median Age	58	58
Age Range	22 to 82	18 to 82
Cause of Renal Disease: Diabetes	52%	57%
Hypertension	6%	5%
Other	42%	38%

AUDIT 1		AUDIT 2	
Pathogen		Pathogen	
MRSA	16%	MRSA	22%
MSSA	19%	MSSA	10%
Enterococcus Species	11%	Enterococcus Species	7%
No growth	11%	No growth	22%
No Culture done	26%	No Culture done	22%
Loading Doses		Loading Doses	
Under Dosed	73%	Under Dosed	80%
Over Dosed	16%	Over Dosed	19%
No Loading Dose	11%	No Loading Dose	1%
Increase in maintenance dose after first level	34%	Increase in maintenance dose after first level	31%
Decrease in maintenance dose after first level	5%	Decrease in maintenance dose after first level	1%
At least one missed dose	70%	At least one missed dose	24%

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-094

A RETROSPECTIVE REVIEW OF THE TWO-STEP TUBERCULIN SKIN TEST IN MANITOBA'S DIALYSIS POPULATION

Thomas Ferguson, Rukhsana Foster, Blake Lerner, Claudio Rigatto, Navdeep Tangri, Paul Komenda
University of Manitoba

Background:
Reactivation of latent *Mycobacterium Tuberculosis* (LTBI) is a health concern for patients on dialysis due to their immunosuppressed state. The most frequently used test for LTBI screening in this population is the Tuberculin Skin Test (TST). The diagnostic accuracy (sensitivity and specificity) of the TST in a contemporary North American dialysis population is unknown.

Objectives:
Our objective was to determine the diagnostic accuracy and clinical utility of the two-step TST in patients receiving dialysis.

Methods:
We performed a retrospective cohort study of 483 hemodialysis and peritoneal dialysis patients across 4 dialysis units. All patients received a two-step TST and full TB risk assessment between February 2008 and December 2008. We then linked the cohort with the Manitoba Health TB Registry to ascertain if treatment was received for LTBI.

Results:
At an induration cut-off of 5mm, 62 (13%) patients had a positive two-step TST. Patients with a BCG vaccination were more likely to test positive (50 vs. 34%, p = 0.05). Using a diagnostic gold standard of an abnormal chest X-ray as a proxy for LTBI, the sensitivity of the TST was only 13.9%, and the specificity was 87.7 %. Only 8 of 62 patients (13%) received treatment for LTBI. None of the patients who tested negative were treated.

Conclusions:
The TST has limited diagnostic and clinical utility for LTBI screening in patients on dialysis. Further research into the diagnostic accuracy of interferon-gamma release assays, and a revision of LTBI screening guidelines in patients on dialysis should be considered.

AGM 2015
MONTREAL, QC

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-095

PBI-4050 REDUCES PRO-FIBROTIC GROWTH FACTORS AND COLLAGEN EXPRESSION IN HUMAN PROXIMAL TUBULE CELLS AND IN THE DOXORUBICIN-INDUCED NEPHROTOXICITY MOUSE MODEL OF ACUTE KIDNEY INJURY

Lyne Gagnon, Martin Leduc, Lilianne Geerts, Kathy Hince, François Sarra-Bournet, Pierre Laurin, Brigitte Grouix
ProMetic BioSciences Inc

Background:
Many growth factors and their receptors have been implicated in the pathogenesis of renal interstitial fibrosis. These growth factors, such as transforming growth factor (TGF)-β, platelet-derived growth factor (PDGF) and epidermal growth factor (EGF), contribute to extracellular matrix production by tubular cells and fibroblasts.

Objectives:
Investigate the effect of PBI-4050, on pro-fibrotic growth factors and collagen expression in TGF-β1-stimulated human proximal tubule (HK-2) cells and corroborate these results *in vivo* in a doxorubicin (Dox)-induced nephropathy, a model of acute kidney injury.

Methods:
mRNA expression was investigated on TGF-β1-stimulated HK-2 cells and in mouse kidney tissue. Nephrotoxicity was induced in BALB/c mice by Dox (10 mg/kg, iv) on day 0. Mice were treated with PBI-4050 (100 to 200 mg/kg, oral, once daily) from day -3 to -1 and days 1 to 13. Serum albumin levels were determined as a marker of tubular toxicity. Animals were sacrificed and their kidneys were removed for histological examination and RNA isolation.

Results:
In TGF-β1-stimulated HK-2, PBI-4050 greatly reduced PDGFβ, EGF, TGF-β1/2/3 and TGF-β type II receptor expression. Expression of collagens I and III was also significantly inhibited by PBI-4050. *In vivo*, Dox administration led to a significant increase of PDGFα/β, TGF-β1 and collagen I mRNA expression, which was reduced to control levels in PBI-4050-treated mice. Serum albumin loss was observed following Dox administration, but restored with PBI-4050 treatment. Histological examination of renal tissue also showed a significant reduction of Dox-induced lesions (tubules distention, fluid accumulation, necrosis) in PBI-4050-treated mice.

Conclusions:
Our results indicate a potent anti-fibrotic effect of PBI-4050 on human proximal tubule cells as observed by an inhibition of pro-fibrotic growth factors and collagen mRNA expression as well as in an acute kidney injury model.

AGM 2015
MONTREAL, QC

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-096

GLOMERULONEPHRITIS AND MORBID NEPHROTIC SYNDROME PRESENTING IN PREGNANCY: A CASE SERIES

Laura Pilozzi-Edmonds (1), Kainat Shahid (2), Mark Anthony Cabrera (3), Michelle A. Hladunewich (2), Amret T. Hawfield (4), Geena Joseph (5), Natasha Michaeloff (2), Tiina Podymow (1)
(1) McGill University
(2) University of Toronto
(3) Wake Forest School of Medicine
(4) Wake Forest Medical School
(5) McMaster University

Background: Nephrotic syndrome due to glomerulonephritis presenting in pregnancy is a challenge to diagnose and treat.

Objectives: Describe the clinical characteristics, clinical evolution of morbid nephrotic syndrome in pregnancy, and current therapeutic regimens in order to inform clinical practice.

Methods: We present a series of 20 pregnant women from 4 academic centres with glomerulonephritis and morbid nephrotic syndrome (not due to preeclampsia or diabetes), and their demographics, diagnosis, clinical and laboratory features, treatments and outcomes.

Results: 20 women average age 28.8 ± 5.2, of whom 13 were primiparas presented with nephrotic syndrome in pregnancy at gestational age 14.0 ± 6.3 weeks; 16 women presented with edema. Second trimester 24 hour proteinuria ranged from 5.3-50 g/day, serum albumin ranged from 0.9-3.7 g/dl and creatinine ranged 35-316 mean 105 ± 66 µmol/L (1.2 ± 0.8 mg/dl) . Third trimester creatinine was 133 ± 80 µmol/L (1.5 ± 0.9 mg/dl). The diagnosis of glomerulonephritis predated pregnancy in 8 patients, 7 women were biopsied during pregnancy, 4 were biopsied postpartum, and 1 patient with reflux nephropathy was not biopsied. Of the 19 biopsied, 8 had FSGS, 4 had class V Lupus, 2 had class IV Lupus, 3 had IgA nephropathy and 2 had hereditary nephritis. During pregnancy, immunomodulatory treatment varied, with 14 receiving oral prednisone with doses ranging 30-120 mg daily, 3 receiving cyclosporine, 4 receiving azathioprine and 2 receiving tacrolimus. Adjunctive therapies included low molecular weight heparin (n=10), aspirin (n=12), and antihypertensives (n=12). Delivery was at gestational age 34.9 ± 3.9 weeks, 10 women had preeclampsia, birth weight at delivery was 2243.4 ± 830.5 g, and 7 infants required NICU admission.

Conclusions: Glomerulonephritis with nephrotic syndrome in pregnancy presents diagnostic, treatment and management challenges with risks to mother and fetus including morbid edema, kidney injury, immunosuppression, hypertension, preeclampsia, prematurity and low birth weight.

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-097 - Withdrawn

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-098

CONVERSION FROM CALCINEURIN INHIBITORS TO RAPAMYCIN IN KIDNEY TRANSPLANT RECIPIENTS WITH CHRONIC KIDNEY DISEASE: CAN INTRARENAL RAPAMYCIN ACCUMULATION PARTICIPATE IN ADVERSE RENAL OUTCOMES?

Héloise Cardinal (1), Judith Naud (2), François A Leblond (2), Anne Boucher (2), Lynne Sénécal (2), Marie-Josée Hébert (3), Vincent Pichette (2)
(1) Université de Montréal
(2) Hôpital Maisonneuve-Rosemont
(3) Centre de Recherche du CHUM

Introduction:
Conversion from calcineurin inhibitors (CNI) to rapamycin may be deleterious in kidney transplant recipients (KTR) with chronic kidney disease (CKD). We have previously shown that CKD modulates the expression of various drug transporters in the kidney, leading to intrarenal drug accumulation.

Aims:
To evaluate whether KTR with CKD are more likely to have adverse renal outcomes up to 1 year after conversion from CNI to rapamycin and, if so, to assess whether intrarenal rapamycin accumulation is associated with CKD.

Methods:
Human study: Among KTR who were converted from CNI to rapamycin, we used logistic regression to assess whether GFR at the time of conversion was associated with adverse renal outcomes (≥15% decrease, graft loss, or rapamycin discontinuation due to GFR deterioration within 1 year of conversion). *Animal study*: Intraperitoneal injections of radiolabeled-rapamycin were administered to 5/6 nephrectomized and control rats. Intrarenal rapamycin accumulation was calculated as the ratio between the radioactivity count for 1 g of kidney and the radioactivity count for 1 mL of plasma.

Results:
Among the 301 patients studied, GFR≤40 ml/min/1.73m^2 at the time of conversion was independently associated with adverse renal events (odds ratio (OR) 1.79, 95% confidence interval (CI) 1.01-3.20), as were proteinuria (OR: 7.06, 95% CI 2.59-19.72), previous rejection (OR: 1.99, 95% CI 1.10-3.59), and recipient age (OR: 0.75 per 10-year increase, 95% CI 0.60-0.95). We observed significant intrarenal rapamycin accumulation in rats with CKD (n=5) compared to controls (n=4) (215 ± 36 % versus 100 ± 45 p<0.01). There was a trend for a correlation between GFR and intrarenal rapamycin accumulation (R^2 : 0.375, p=0.08).

Conclusion: Our results show that CKD leads to intrarenal rapamycin accumulation, which could participate in adverse renal outcomes that are observed after conversion from CNI to rapamycin in KTR with CKD.

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-099 - Withdrawn

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-100

CHRONIC KIDNEY DISEASE AND HOME AND COMMUNITY CARE IN BRITISH COLUMBIA

Sema K Aydede (1), Yifan Zhang (1), Jeffrey Yiu (1), Simon Tai (1), Ognjenka Djurdjev (2), Paul Komenda (3), Adeera Levin (1)
(1) University of British Columbia
(2) BC Renal Agency
(3) University of Manitoba

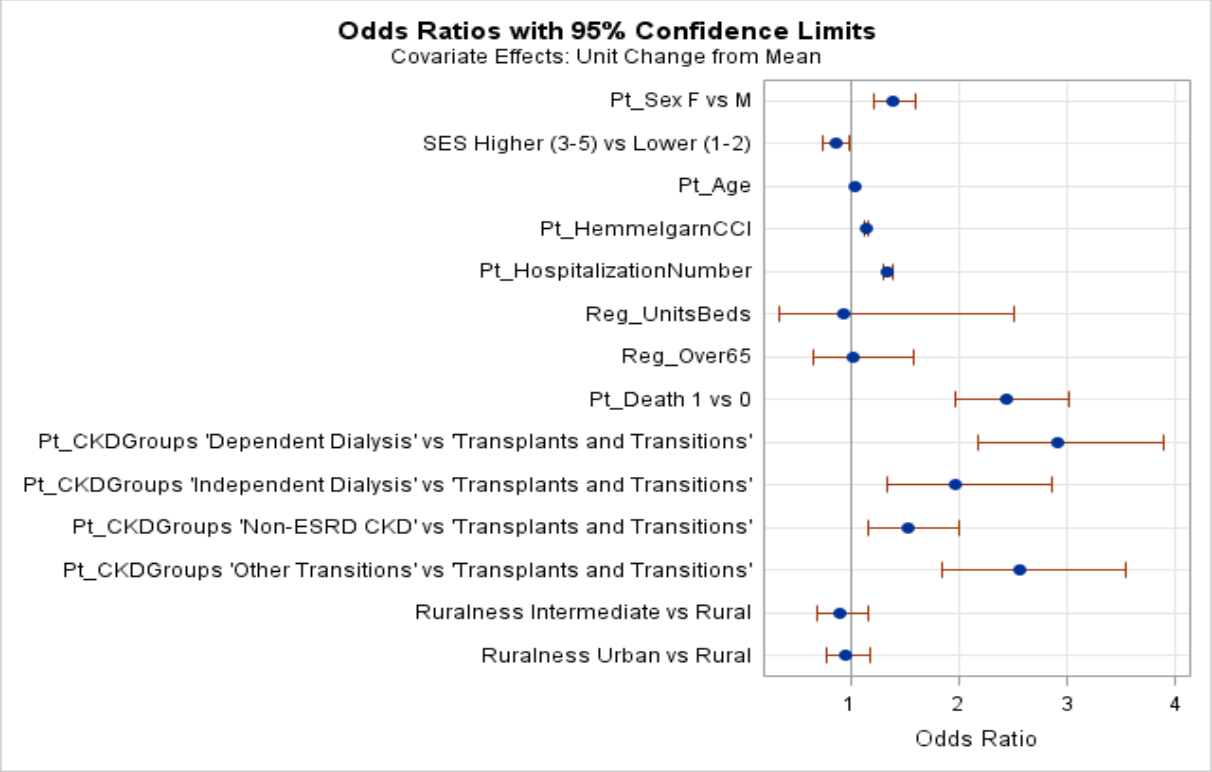
Background:
Current focus on active aging emphasizes the support home and community care (HCC) provides to patients such as those with chronic kidney disease (CKD) that is common among older people who have comorbidities and functional limitations. There is limited information on HCC use among CKD. This study fills that void.

Methods:
Clinical (BC Renal Agency and BC Transplant-kidney transplants) and Ministry of Health (Consolidation, inpatient and HCC) data (2009/10) on 16,559 CKD patients (grouped into 'non-ESRD CKD', 'dependent dialysis' (in-center and community hemodialysis, HD), 'independent dialysis' (home HD and peritoneal dialysis), 'transplants and transitions' and 'other transitions' (all care transitions excluding transplantation)) were linked for a cross-sectional study with mixed modelling. HCC incorporated a wide range of services including home support, nursing and palliative care.

Results:
'Non-ESRD CKD' was the oldest (mean=71.9±13.9), 'dependent dialysis' had the highest Charlson Comorbidity Index (CCI, mean=3.7±3.3), 'transplant' had the lowest deaths (2%), 'other transitions' had the highest hospitalizations (mean=2.9±2.3), 'independent dialysis' had the lowest proportion of patients with lower socio-economic status (SES, 42%). HCC use ranged between 26% ('dependent dialysis') and 4% ('transplant'). After adjustments (graph), CKD group variations in HCC use remained. The relative HCC use was not different across regions.

Conclusions:
This study provides preliminary evidence that could support health authority decision-making for HCC service planning for a growing number of CKD patients in an aging society. Further studies are needed to explore the impact additional factors such as functional status and informal family support have on HCC use among CKD.

P-100


Odds Ratios with 95% Confidence Limits
Covariate Effects: Unit Change from Mean
Pt_Sex F vs M
SES Higher (3-5) vs Lower (1-2)
Pt_Age
Pt_HemmelgarnCCI
Pt_HospitalizationNumber
Reg_UnitsBeds
Reg_Over65
Pt_Death 1 vs 0
Pt_CKDGroups 'Dependent Dialysis' vs 'Transplants and Transitions'
Pt_CKDGroups 'Independent Dialysis' vs 'Transplants and Transitions'
Pt_CKDGroups 'Non-ESRD CKD' vs 'Transplants and Transitions'
Pt_CKDGroups 'Other Transitions' vs 'Transplants and Transitions'
Ruralness Intermediate vs Rural
Ruralness Urban vs Rural
1
2
3
4
Odds Ratio

AGM 2015
MONTREAL, QC

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-101

EVALUATING THE AVAILABILITY AND CHARACTERISTICS OF CHRONIC KIDNEY DISEASE CLINICAL PATHWAYS: A SCOPING REVIEW

Meghan Elliott (1), Sarah Gil (2), Maoliosa Donald (2), Braden Manns (2), Marcello Tonelli (2), Min Jun (2), Brenda Hemmelgarn (2)
(1) University of Toronto
(2) University of Calgary

Background:
Clinical pathways are useful tools in the provision of evidence-based health care and could be used to optimize diagnosis and management of chronic kidney disease (CKD).

Objectives:
To conduct a scoping review of the literature on clinical pathway use in adult CKD diagnosis and/or management.

Methods:
Published studies were identified through electronic searches of Medline, Embase, and CINAHL. Grey literature and bibliographies were also searched. Qualitative or quantitative studies on visual (step-by-step guide, visual algorithm, or flow chart) or descriptive (details outlined in text format only) clinical pathways for diagnosis and/or management of adults with CKD were included. We excluded articles on end-stage renal disease, kidney transplant, dialysis, acute kidney injury, or conservative care. Two reviewers independently evaluated the articles for inclusion, with a third resolving discrepancies. Two reviewers independently extracted data on study design and pathway features, implementation, and evaluation. An analytical framework was created to examine and categorize findings.

Results:
Of 443 articles identified, 44 were included (5 published articles and 39 grey literature). 17 included visual pathways, and 20 had both visual and descriptive features. The majority of CKD clinical pathways (68% of those reporting end-users) were intended for use in primary care settings, while only 2 pathways were targeted for patient use. 32 pathways (73%) included approaches to both screening and management (pharmacologic and lifestyle) of CKD. Almost all pathways were accessible online and in printed format. Only 3 described a process for evaluating pathway effectiveness, although results of these evaluations were not included.

Conclusions:
There is significant heterogeneity in existing CKD clinical pathways with respect to format, intended end-users, and targeted population. This review highlights the need for an inclusive, evidence-based CKD clinical pathway and evaluation of the effectiveness of future pathways.

AGM 2015
MONTREAL, QC

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-102

DIASTOLIC HYPOTENSION IN A TERTIARY CARE HYPERTENSION CLINIC

Swapnil Hiremath (1), Trevor Mace-Brickman (1), Brendan McCormick (1), Marcel Ruzicka (1), Wilder Leduc (2)
(1) The Ottawa Hospital
(2) Ottawa University

Background
Low diastolic blood pressure (dBP) is associated with poor cardiovascular outcomes. The Canadian Hypertension Education Programme recommends caution in treating patients with systolic hypertension in the presence of diastolic hypotension (DH).

Objectives
To identify the prevalence of and risk factors for DH in patients with difficult to treat systolic hypertension. Secondary objectives included an assessment of physician management of patients with baseline DH.

Methods
A retrospective review of all active patients at the Ottawa Hospital Renal Hypertension Clinic. Demographics, comorbidities, resting BP, and medications were recorded at baseline and first visit where sBP goal was met. DH was defined as a dBP<60 mm Hg. Logistic regression was performed for predictors of DH at baseline and follow-up.

Results
466 patients were identified. Mean baseline BP was 142/77 mm Hg, mean number of medications was 2.9, and 49 (10.5%) had DH at baseline. Of patients who did not have DH at baseline, 68 (16%) developed DH during follow up. Those with DH at baseline had no change in number of anti-hypertensive medications on follow up (mean 3.6 to 3.7, p=0.46) and dBP did not change (53 to 55 mm Hg, P=0.07). On adjusted analysis, older age (OR 1.03,P=0.03), female sex (OR 3.2,P=0.002), diabetes (OR 3.8,P<0.001) and use of a CCB (OR 2.4,P=0.03) were predictors of baseline DH. Similarly, older age (OR 1.04 p=0.0008), diabetes (OR 2.8 P=0.002), higher baseline sBP (OR 1.03 per mm Hg P<0.001) and lower baseline dBP (OR 0.003,P<0.001) were predictors of DH at follow up.

Conclusions
Treating systolic hypertension results in DH in 27% of patients followed at a tertiary care hypertension clinic. The presence of DH does not usually result in the reduction of antihypertensive therapy. Older patients, diabetics, and patients with isolated systolic hypertension appear to be more susceptible to developing DH during therapy.

AGM 2015
MONTREAL, QC

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-103

C-PEPTIDE AS A POTENTIAL THERAPY FOR RENAL DISEASE: A SYSTEMATIC REVIEW AND META-ANALYSIS

James Shaw (1), Partha Shetty (2), Kevin Burns (2), Dean Fergusson (2), Greg Knoll (2)
(1) University of Ottawa
(2) Ottawa Hospital Research Institute

Background :
New therapies are needed to slow the progression of chronic kidney disease. Proinsulin C-peptide is biologically active and may be renoprotective.

Objectives:
We conducted a systematic review and meta-analysis to determine the effect of exogenous C-peptide on markers of renal function.

Methods:
MEDLINE, EMBASE, and Cochrane Central Databases were searched with keywords related to C-peptide and renal pathophysiology. Human and animal studies were identified in which C-peptide was administered to either humans or animals and then renal outcomes such as change in GFR or proteinuria were subsequently measured. Quality assessment of the articles was also performed.

Results:
We identified 4 human trials involving 74 patients as well as 18 animal studies involving 35 separate experiments with a total of 641 animals. In humans, the renal effects of exogenously delivered C-peptide were only studied in type 1 diabetics with either normal renal function or incipient nephropathy. Pooled analysis showed no difference in GFR (mean difference, -1.36 mL/min/1.73 m^2, p=0.72) in patients receiving C-peptide compared to a control group. Two studies reported reduced albuminuria in the C-peptide group ($p<0.05$). In diabetic rodent models, C-peptide led to a reduction in GFR (mean difference, -0.62 mL/min, $p<0.00001$) reflecting a partial reduction in glomerular hyperfiltration. C-peptide also reduced proteinuria (mean difference, -186.25 mg/day, p=0.05), glomerular volume ($p<0.00001$), and mesangial matrix area ($p<0.00001$) in diabetic animals without affecting blood pressure or plasma glucose. Most studies were relatively short-term in duration, ranging from 1 hour to 3 months.

Conclusions:
There is weak evidence that C-peptide reduces proteinuria in humans with type 1 diabetes. In animal models of diabetes C-peptide reduces glomerular hypertrophy and proteinuria in early diabetic nephropathy. Larger clinical trials are required to determine if the benefits seen in animals will translate into improved outcomes for patients with chronic kidney disease.

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-104

THE EFFICACY OF A PHARMACIST MANAGED HYPERTENSION PROGRAM ON BLOOD PRESSURE CONTROL IN PATIENTS WITH UNCONTROLLED HYPERTENSION

Riddhi Aggarwal, Dr. Hitesh Mehta, Dr. Bajinder Reen, Ryan Vrancea
William Osler Health System

Background:
Chronic Kidney Disease (CKD) affects more than 2 million Canadians. Targeting and controlling modifiable risk factors of CKD such as hypertension (HTN) can be a critical strategy to prevent progression to end-stage renal disease (ESRD). A multidisciplinary Regional Kidney Wellness Centre (KWC) was established to treat patients with uncontrolled HTN. The introduction of a pharmacist- managed approach to BP control and its efficacy is evaluated in this study.

Objectives:
To evaluate whether a pharmacist-managed hypertension program can effectively help patients with uncontrolled hypertension reach target BP levels.

Methods:
A total of 26 patients aged 18 years or older, (14 male, 12 female), were enrolled and evaluated retrospectively for a total of 9 months. All patients had uncontrolled hypertension, defined as an office BP ≥ 140/90 mmHg (non-diabetic patients) or ≥ 130/80 mmHg (diabetic patients); and had an average of four consultations with a clinical pharmacist. Patients with CKD stage 5, gestational HTN, or post-partum HTN were excluded from this study.

Results :
Blood Pressure significantly reduced from baseline to 9 months in all patients ($p < 0.001$), mean intensification of antihypertensive regimen = 0.69 . Approx. 40% of patients reached target BP (10% diabetic , 90% non-diabetic) . There was a small but significant reduction in eGFR from baseline in all patients ($p < 0.001$). ACR and CrCl did not differ significantly at 9 months.

Conclusions:
The implementation of pharmacist-managed HTN program effectively reduces BP in patients receiving, on average, four interventions.

The impact of frequent BP monitoring and intensification of antihypertensive regimen in BP control in the progression of CKD, morbidity and mortality needs to be evaluated over a longer period of time in a prospective study.

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-105

EVALUATION OF CHANGE IN QUALITY OF LIFE AND DEPRESSIVE SYMPTOMS FOLLOWING PARTICIPATION IN THE TORONTO REHAB GERIATRIC DIALYSIS PROGRAM

Kevin Yau, Janine F. Farragher, Angelique Chai, Sarbjit V. Jassal
University Health Network

Background:
The Geriatric Dialysis Rehabilitation Program (GDRP) provides older hemodialysis patients with a unique opportunity to participate in inpatient rehabilitation and receive short daily dialysis treatments. The program aims to restore patient health and function to a level allowing for return home.

Objectives:
The purpose of this prospective study was to evaluate quality of life (QoL) and depressive symptoms following participation in the GDRP.

Methods:
Quality of life and depressive symptoms were measured with validated questionnaires: the Kidney Disease Quality of Life Scale (KDQOL-36) and Patient Health Questionnaire (PHQ-9) respectively. The KDQOL-36 provides scores in five domains, while the PHQ-9 provides a single score. Paired statistics were used to assess changes in scores from baseline at the time of follow-up, four weeks post-discharge.

Results:
83 patients, aged 71± 9 years, have been enrolled and completed a baseline KDQOL-36 and PHQ-9. Complete data on 49/83 (59%) show clinically and statistically significant improvements in the domains of “Symptoms/Problem List” ($p=0.004$), “Physical Component Summary” ($p<0.001$), and “Mental Component Summary” ($p=0.002$). At baseline, 71% of patients had depressive symptoms (31.3% mild, 21.7% moderate, 12.1% moderately severe, and 6% severe). Depressive symptoms scores improved ($p=0.004$) with a 20% decrease in prevalence (30.6% mild, 10.2% moderate, 6.1% moderately severe, 4.1% severe). Changes in depressive symptoms inversely correlated with changes in all QoL domains.

Conclusions:
This study demonstrated significant improvement in physical and mental well-being, symptomatic improvement, and a reduction in depressive symptoms amongst older patients participating in the GDRP. These results suggest rehabilitation programs may improve QoL amongst elderly dialysis patients.

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-106

ACUTE BOWEL OBSTRUCTION WITH TRANSITION POINT IN PERITONEAL DIALYSIS PATIENTS: AN ATYPICAL PRESENTATION OF ENCAPSULATING PERITONEAL SCLEROSIS

Sassan Ghazan-Shahi, Joanne Bargman
University of Toronto

Encapsulating peritoneal sclerosis (EPS) is a rare but devastating complication of long-term peritoneal dialysis (PD). It is classically characterized by progressive thickening and fibrosis of the entire peritoneal membrane, which eventually leads to cocooning and encapsulation of the abdominal content by the abnormal fibrous tissue We report two cases of bowel obstruction with obvious transition point, appearing to be localized, which happened in patients with autoimmune disease background and after being on PD for many years. We postulate that localized fibrosis represents an atypical form of EPS. Further studies are needed to specify whether there are imaging findings that are specific for these atypical cases.

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-107

A PHASE IIIB STUDY TO OPTIMIZE THE USE OF A LOW MOLECULAR WEIGHT HEPARIN FOR HEMODIALYSIS CIRCUIT CLOTTING: THE PARROT STUDY

Jo-Anne Wilson (1), Karthik Tennankore (1), Brendan Barrett (2), Mohsen Agharazii (3), Norman Muirhead (4), Louise Roy (5), Fiona Hilton (6), Irinia Kaplan (6), Guillaume Feugere (6), Steven Soroka (1)
(1) Capital Health District Authority; Dalhousie University
(2) Memorial University of Newfoundland
(3) CHU de Quebec, Universite Laval
(4) LHSC University Hospital
(5) CHUM University of Montreal
(6) Pfizer

Background:
Dalteparin sodium, a low molecular weight heparin (LMWH), is indicated for the prevention of clotting in the extracorporeal system during hemodialysis (HD). As per product labelling, a fixed single bolus dose of 5000 international units (IU) is recommended for HD sessions lasting up to 4 hours; however, some subjects may benefit from a more flexible dose regimen.

Objectives:
To investigate the safety and efficacy of a new dalteparin dosing regimen for HD sessions lasting up to 4 hours.

Methods:
A single arm study that will include 150 dialysis patients (dialyzed 3 times/week, up to 20 HD sessions in total). Each subject starts at a dose of 5000 IU (administered into the arterial side of the dialyzer), then dose adjustments (up or down in 500 IU or 1000 IU increments) are permitted for subsequent HD sessions based upon the clinical outcome (clotting, minor bleeding, increased compression time) of the previous HD session. Subjects with known risk of bleeding, unstable clinical conditions, diabetic retinopathy, >80 years old or taking concomitant anticoagulant/platelet therapy are excluded from the study. The primary endpoint is mean percent successful HD sessions, (completed as planned without early termination due to clotting). The study will be positive if the 95% confidence interval lower bound is greater than 86%. The fixed and flexible dalteparin sodium dosing are compared using a split-sample approach where the HD sessions are subset for each subject: fixed dosing is represented by sessions with dose 5000 IU, and flexible dosing is represented by all sessions. Key secondary outcomes will include dose adjustments, bleeding, clotting, anti-factor Xa levels, access compression time and access thrombosis.

Conclusion: The ongoing PARROT study is expected to demonstrate the clinical benefit of the flexible dose regimen by generating comparative data (vs. fixed) from a single arm study.

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-108

THE PILOT TRIAL: FEASIBILITY OF USING DALTEPARIN AS AN ANTICOAGULANT FOR THE EXTRACORPOREAL CIRCUIT DURING HEMODIALYSIS

Joanne Breckles (1), Moataz Daoud (2), Sandy Liu (2), John (Chan-Hyuk) Park (3) Stephen Chow (1)
(1) Toronto East General Hospital
(2) University of Toronto
(3) University of Waterloo

Background:
During hemodialysis (HD), anticoagulation is required to prevent thrombosis in the extracorporeal circuit (ECC). Heparin is the anticoagulant of choice for the ECC in North America. However, increasing demand, and safety concerns stemming from contamination have led to shortages and rising costs.

Objectives:
We conducted a pilot to evaluate the efficacy, safety, and feasibility of switching to dalteparin, a Low Molecular Weight Heparin (LMWH), as the primary anticoagulant in the ECC during HD.

Methods:
Eighteen stable HD patients with no known history of bleeding events were selected. Patients <100kg received dalteparin 2500IU while patients >100kg received 5000IU for 6 consecutive treatments. The following data was collected; dose administered, stage of ECC clotting, and bleeding events. The stage of clotting was defined using a custom-built standardized classification scale. The bioaccumulation of dalteparin (defined as anti-Xa level >0.4IU/mL), was measured at base-line and post 6 treatments. Lastly, the cost implications of switching from heparin to dalteparin were determined by comparing overall usage.

Results:
There was no statistically significant increase in anti-Xa levels before (0-0.28 IU/ml) and after (0-0.25 IU/ml) treatments. The cost of anticoagulation before the switch was 1.34 times more than the cost after the switch. Refer to table 1 for the number of clotting events stratified by stage.

Conclusion:
The results of our pilot suggest that dalteparin is a safe and cost-effective alternative to heparin for preventing ECC thrombosis in HD. Dalteparin use should be further examined in a larger HD patient population to validate these findings.

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

P-108

Table 1. Number of treatments that exhibited each clotting stage.

Stage of Coagulation of the Venous Chamber	Number of Events (n=108)
Stage 1 no visible clot/fibrin	60 (56%)
Stage 2 fibrin ring in venous chamber/blood stripes (less than 25% of the fibers clotted)	45 (42%)
Stage 3 visible clot in venous chamber/blood stripes (more than 25% of the fibers clotted)	2 (1.9%)
Stage 4 clotted venous chamber/ clotted dialyzer (unable to re-transfuse)	1 (0.0092%)

AGM 2015
MONTREAL, QC

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-109

UNEXPLAINED GEOGRAPHIC AND FACILITY VARIATION IN THE INITIAL USE OF TEMPORARY NON-TUNNELED CATHETERS FOR CHRONIC DIALYSIS PATIENTS

Edward Clark (1), Ayub Akbari (1), Brett Hiebert (2), Swapnil Hiremath (1), Navdeep Tangri (3), Manish Sood (1)
(1) University of Ottawa
(2) St. Boniface General Hospital
(3) University of Manitoba

Introduction:
Non-tunneled (temporary) hemodialysis catheters (NTHCs) are the least-optimal initial vascular access for chronic dialysis patients but little is known about factors associated with NTHC use in this context.

Objectives:
We sought to determine factors associated with initial NTHC use for chronic dialysis patients.

Methods:
We analyzed registry data collected between January 2001 and December 2010 from 82 dialysis facilities in 14 geographic regions in Canada. Multi-level models and intra-class correlation coefficients were used to evaluate variation in NTHC use as initial dialysis access across facilities and geographic regions. Facility and patient characteristics associated with the lowest and highest quartiles of NTHC use were compared.

Results:
During the study period, 21, 091 patients initiated chronic dialysis with central venous catheters (CVCs) of which 10,183 (48.3%) were NTHCs. Crude variation in NTHC use across facilities ranged from 3.7 to 99.4% and across geographic regions from 32.4 to 85.1%. In an adjusted multi-level logistic regression model, explained variation at the facility and regional levels was 40.0% and 34.1%, respectively. Similar results were observed for the subgroup of patients who received > 12 months of pre-dialysis nephrology care. Adjusted odds ratios for initial NTHC use ranged from 0.59 to 9.3 across geographic regions. Male sex, coronary artery disease, pulmonary edema, COPD, increasing distance from dialysis facility, hypertension, higher serum phosphate, lower serum albumin and calendar year were associated with NTHC use.

Conclusions:
There is wide variation in NTHC use as initial vascular access for chronic dialysis patients across facilities and geographic regions in Canada. Defining the factors that underpin this variation could facilitate a reduction of NTHC use in favor of more optimal initial vascular access.

AGM 2015
MONTREAL, QC

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-110

SCREENING CANDIDATE GENES FOR A CAUSE OF PEDIATRIC IDIOPATHIC HYPERCALCIURIA

Emma Heydari, Todd Alexander
University of Alberta

Background:
Hypercalciuria affects up to 10% of Canadian children causing significant morbidity, including hematuria, nephrolithiasis, and osteopenia. “Idiopathic hypercalciuria” (IH) is the most common diagnosis given to children with hypercalciuria. Approximately 50% of individuals with IH have a first-degree relative with hypercalciuria, suggesting a strong genetic basis for this disease. Most filtered calcium is reabsorbed by the nephron, predominantly via passive transport from the proximal tubule, the defective segment implicated in the pathogenesis of IH.

Objective:
Generate a cohort of children with idiopathic hypercalciuria and sequence genes implicated in paracellular calcium reabsorption from the proximal tubule, specifically claudin-2 and -12.

Design:
Children with IH were recruited into the cohort. IH was defined as an elevated calcium:creatinine (Ca:Cr) ratio with normal serum calcium and parathyroid hormone (PTH) levels. Hypercalciuria was defined as Ca:Cr ratio >2.24 for patients 0-6 months, >1.68 for patients 6-12 months, and >0.56 for patients >12 months. Patients on medications known to increase calcium excretion or diagnosed with a genetic syndrome known to increase calcium excretion were excluded. Data collected included demographics, presenting symptoms, family history, initiation of high fluid intake, hydrochlorothiazide therapy, and vitamin D supplementation. DNA from a proportion of patients was collected and claudin-2 and -12 were sequenced.

Results:
Data was collected from 18 children with IH, seen between 1998 and 2014. Preliminary data reveals that 67% of patients were male and median age of symptom onset was 5 years. The majority of patients presented with hematuria. The median Ca:Cr at the time of diagnosis was 0.93. The median hydroxy-vitamin D_3 level was normal; however, the median dihydroxy-vitamin D_3 level was significantly elevated at 200 pM (reference range: 43-68). Sequencing analysis for claudin-2 and claudin-12 DNA revealed no significant polymorphisms.

Conclusions:
Mutations in claudin-2 and -12 are not a common cause of hypercalciuria in children.

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-111

FEASIBILITY OF A HEMODIALYSIS SAFETY CHECKLIST FOR NURSES AND PATIENTS: A QUALITY IMPROVEMENT STUDY

Samuel Silver, Alison Thomas, Andrea Rathe, Pamela Robinson, Ron Wald, Chaim Bell, Ziv Harel
University of Toronto

Background:
We previously developed a Hemodialysis Safety Checklist (Hemo Pause) using a structured panel process to improve patient safety in the hemodialysis unit. Our objective was to determine the feasibility of using Hemo Pause during every hemodialysis session for three months.

Methods:
We conducted a single center, prospective time series study. A convenience sample of 14 nurses and 22 prevalent in-center hemodialysis patients participated. All participants were trained in the administration of Hemo Pause, and were free to suggest modifications consistent with quality improvement methodology. Hemo Pause completion was assessed by the percentage of checklist items in the patient chart with a notation. We measured Hemo Pause feasibility using a local patient safety survey. We also measured pre-specified quality of care items and adverse events to guide future studies.

Results:
There were 799 hemodialysis treatments pre-intervention (January 13-April 5, 2014) and 650 post-intervention (May 5-July 5, 2014). The checklist was completed for 556 of 650 (86%) treatments, and remained consistent throughout the study. The most common reasons for non-completion were the availability of nursing staff trained in Hemo Pause and patient admission to hospital. Among hemodialysis nurses, 93% (13/14) agreed that Hemo Pause was easy to use and 79% (11/14) agreed it should be expanded to other patients. Among hemodialysis patients, 71% (12/17) agreed that Hemo Pause made them feel safer and should be expanded to other patients. The most common quality of care problem was missed blood pressure documentation both before (331/650, 51%) and after (237/650, 36%) hemodialysis.

Conclusions:
A Hemodialysis Safety Checklist (Hemo Pause) was acceptable to both nurses and patients, and its use was sustained for three months. Our next step is to spread Hemo Pause locally, as well as determine if Hemo Pause can improve safety culture and reduce adverse events.

AGM 2015
MONTREAL, QC

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-112

NOVEL EQUATIONS TO ESTIMATE TOTAL BODY WATER MAY LEAD TO A MORE ACCURATE CALCULATION OF KT/V IN MAINTENANCE HEMODIALYSIS PATIENTS

Nazanin Noori, Arti Sharma Parpia, Ron Wald, Ann Jones, Mimi Cheng, Ramona Aslahi, Marc Goldstein
St. Michael's Hospital

Background: Having an accurate estimation of total body water(TBW) is essential for the evaluation of hemodialysis(HD) adequacy using Kt/V calculation.Watson formula TBW, which is widely used to calculate Kt/V has been derived from healthy populations and may not be valid in HD patients with variable body composition.Body Composition Monitor (BCM,Fresenius,Bad Homburg,Germany)which has been validated against gold standard methods provides an accurate determination of TBW by bioimpedance spectroscopy.

Objectives: To examine the correlation of BCM measured TBW with anthropometric measurements and develop equations to estimate TBW.

Methods: Surrogates of fat(biceps,triceps,suprailiac and subscapular skinfold thicknesses and waist and mid arm circumferences)and muscle mass(handgrip strength with dynamometer) were measured in 61prevalent HD patients.Pearson's correlation coefficients between BCM-measured TBW and demographic and anthropometric measures were examined.We used multiple linear regression analyses with least squares methods to develop the most parsimonious equations to estimate TBW.

Results: Stepwise procedures led to the selection of 3 demographic variables (gender, weight and waist circumference).The calculated root mean square errors(RMSE) were the smallest in the equations based on weight(4.57),waist circumference(6.45)and sex(5.77, all p-values <0.01). Inclusion of all 3predictors in the same regression equation improved RMSE (r^2=0.76,p<0.001,RMSE=3.05). However, gender appeared to be interacting with weight and waist circumference we created separate equations for men and women.

TBW(men)=23.346+(0.551×weight)-(0.285×waist circumference)

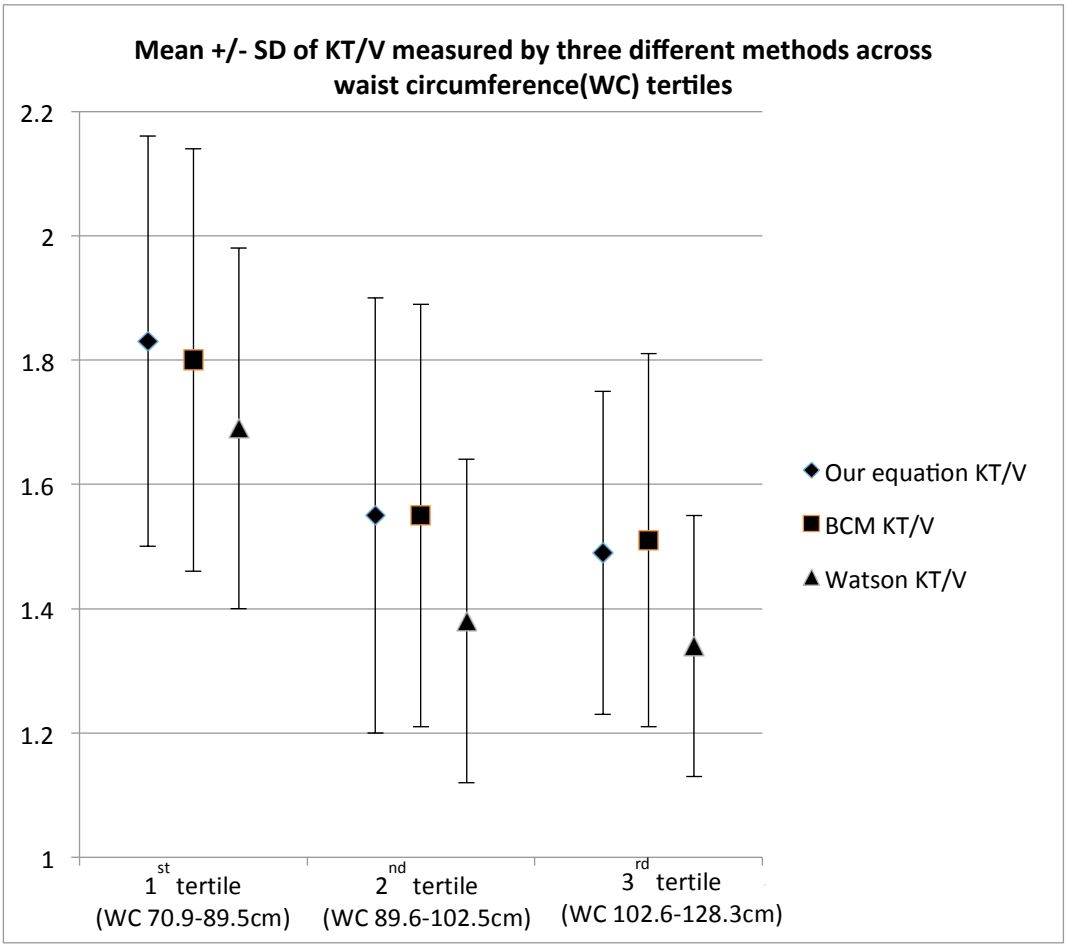
TBW(women)=15.768+(0.399×weight)-(0.156×waist circumference)

When derived by Watson formula,TBW results underestimated Kt/V especially in the highest tertile of waist circumference(abdominal obese patients)(Figure-1).

Conclusions: In combination with waist circumference,gender and weight provides a quick, practical equation that can be used for routine assessment of TBW possibly leading to more accurate estimates of Kt/V.

P-112

Fig-1:


Mean +/- SD of KT/V measured by three different methods across waist circumference(WC) tertiles
2.2
2
1.8
1.6
1.4
1.2
1
1st tertile (WC 70.9-89.5cm)
2nd tertile (WC 89.6-102.5cm)
3rd tertile (WC 102.6-128.3cm)
Our equation KT/V
BCM KT/V
Watson KT/V

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-113

CLAUDIN 3 CRISPR KNOCKOUT MICE ARE HEALTHY AND FERTILE

Indra Gupta (1), Jenessa Kerr (1), Jasmine El Andalousi (1), Yojiro Yamanaka (2), Aimee Ryan (1)
(1) McGill University Health Center
(2) Goodman Cancer Research Centre

The filtering properties of the nephron are determined by the unique combination of claudins expressed within each segment, which regulate the paracellular passage of ions and solutes through tight junctions. Claudins are expressed in the nephric duct in advance of kidney function. Nephric duct derivatives undergo branching morphogenesis and ultimately the number of branch tips determines the number of nephrons formed. In the chick embryo, a reagent that specifically removes Claudin 3 and 4 from tight junctions blocked nephric duct formation. This led us to hypothesize that claudins are required for kidney development in the mouse. *Claudin-4* knockout mice do not have an embryonic phenotype, therefore, Claudin-3 was prioritized for investigation. Claudin-3 compound heterozygote mice were created using the CRISPR/Cas9 system of genome editing. Male and female founder mice were generated with distinct frameshift mutations in both *Claudin-3* alleles. Neither of these founders showed an obvious phenotype. Pups derived from mating these founders appeared grossly normal. Histological analysis of the kidneys did not reveal a nephron phenotype. In conclusion, *Claudin-3* null mice generated by CRISPR/Cas9 are healthy and fertile. We hypothesize that the lack of Claudin-3 is compensated by other claudins. This will be tested by creating double knockouts using the CRISPR/Cas9 system, which would be predicted to create a more severe phenotype and allow further understanding of the important role of claudins during kidney development.Funding: Kidney Foundation of Canada

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-114

COST-COMPARISON BETWEEN DALTEPARIN AND HEPARIN AS THE PRIMARY ANTICOAGULANT FOR THE PRVENTION OF EXTRACORPOREAL CIRCUIT CLOTTING DURING HEMODIALYSIS

Joanne Breckles (1), Moataz Daoud (2), John Park (3), Stephen Chow (1)
(1) Toronto East General Hospital
(2) University of Toronto
(3) University of Waterloo

Background:
During hemodialysis (HD), anticoagulation is required to prevent thrombosis in the extracorporeal circuit (ECC). Heparin is the anticoagulant of choice for the ECC in North America. Although, heparin vials are relatively inexpensive, the treatment costs are substantially higher due to waste, preparation, and personnel cost. A pilot of 18 HD patients conducted in our unit demonstrated that dalteparin was a safe and effective alternative for the prevention of ECC clots with no bioaccumulation or increased risk of bleeds.

Objectives:
To compare the cost of using Heparin vs. Dalteparin, a Low Molecular Weight Heparin (LMWH) for prevention of ECC clots in HD.

Methods:
A retrospective, cross-over observational study examined the cost of using dalteparin vs. heparin as the primary anticoagulant for 8 month pre and post protocol change. Macro-costing was performed using drug costs from the pharmacy department. The protocol mandated a dalteparin dose increase of 2500 IU if stage ≥3 clot was observed. Refer to table 1 for classification of clotting stages. To evaluate the efficacy of dalteparin, patients were monitored for dose increases to determine if a stage ≥3 clot occurred.

Results:
The protocol change to dalteparin as the primary anticoagulant resulted in a significant cost-reduction of 10.5% over an 8 month period. Eighty-one percent of the HD patients were on dalteparin post-protocol change. Of the patients on dalteparin, only 4% experienced a stage ≥3 clot requiring a dose increase.

Conclusion:
Dalteparin is a cost-effective alternative to heparin for the prevention ECC clots during HD.

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

P-114

Table 1. Definition of coagulation stages and intervention performed for each clotting stage observed.

Stage of Coagulation of the venous chamber	Intervention required
Stage 1 no visible clot/fibrin	No dose modification required.
Stage 2 fibrin ring in venous chamber/blood stripes (less than 25% of the fibers clotted)	No dose modification required.
Stage 3 Visible clot in venous chamber/blood stripes (more than 25% of the fibers clotted)	Increase the dose by 2500 IU at the next dialysis treatment, to a maximum dose of 10,000 IU. Check anti-factor Xa.
Stage 4 clotted venous chamber/ clotted dialyzer (unable to re-transfuse)	Advise the nephrologist if need to restart the treatment with a new circuit. Do not administer a second bolus of dalteparin, flush only. Check CBC and Anti-factor Xa.

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-115

ESTABLISHING AND MAINTAINING HIGH RATES OF HOME DIALYSIS THERAPIES IN BRITISH COLUMBIA WITH A SYSTEMATIC INTEGRATED APPROACH.

Penny Hill (1), Lee Er (2), Michael Copland (1), Rajinder Singh (1), Ognjenka Djurdjev (2), Adeera Levin (1), Paul Taylor (1)
(1) UBC Division of Nephrology
(2) BC Provincial Renal Agency

Background
Home Therapies (HT) including Home Hemodialysis and Peritoneal Dialysis are of clear benefit both to the individual and the healthcare system. Despite the purported benefits of HT, the prevalence both in Canada and internationally is lower than expected. The increasing ESRD population as well as increased age, frailty and co-morbidity pose a particular challenge.

Objectives
To describe the results of a systematic approach that demonstrates successful maintenance of a large HT program in one Canadian Province.

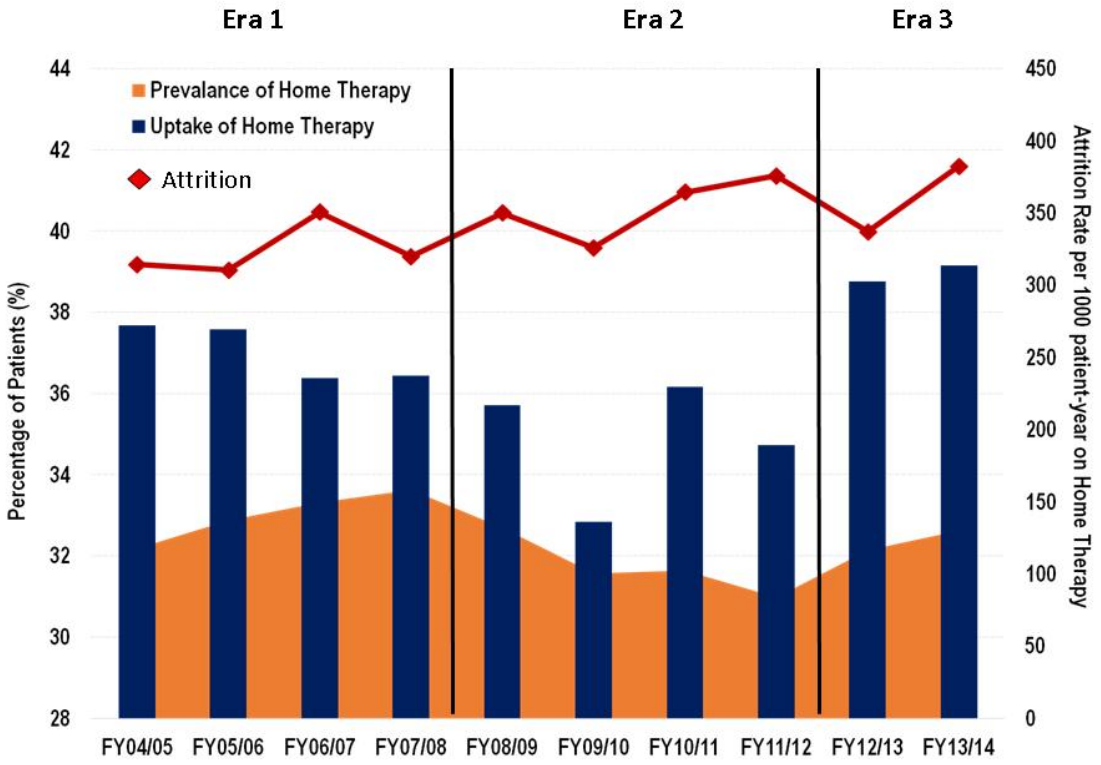
Methods
Many strategies have been implemented in BC over the past decade to address both intake to HT and attrition. Effects of these interventions on HT prevalence were compared over 3 different eras (2004-2007, 2008-2011, 2012-2014).

Results
British Columbia successfully maintained the highest HT rates in Canada with 30-33% prevalence over the past decade (see **Figure 1**). Initial strategies focused mainly on improving uptake in Era 1but strategies to decrease attrition were introduced in Era 2 due to increasing technique failure. The most recent Era showed further growth of intake with stabilization of attrition as a result of these interventions.

Conclusions
Multi-pronged intervention and a systematic Provincial strategy can lead to improved HT prevalence with benefits for the patients, providers and payers.

P-115

Figure 1. Prevalence of Home Therapies in BC relative to uptake and attrition



Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-116

BLOOD PRESSURE AND RENAL FUNCTION IN CHILDREN AND ADOLESCENTS AT RISK FOR OBESITY

Cassy Shitong Wang (1), Michael Zappitelli (2), Melanie Henderson (3), Gilles Paradis (1)
(1) McGill University
(2) Montreal Children's Hospital
(3) Centre Hospitalier Universitaire de Sainte-Justine, Université de Montréal

Background:
Adult hypertension is associated with kidney dysfunction. Few pediatric studies on the relationship between blood pressure (BP) and glomerular filtration rate (GFR) exist.

Objectives:
Examine the relation between BP and GFR in children at risk of obesity.

Methods:
The Quebec Adipose and Lifestyle InvesTigation in Youth (QUALITY) cohort is a longitudinal, prospective study of Caucasian children at risk for obesity (2 completed visits). Data collected includes anthropometry, adiposity, cardiovascular health, biological samples, and lifestyle. Main exposure variables: systolic (SBP) and diastolic (DBP) BP 1) z scores, 2) quintiles, and 3) "highest quintile". Outcome: GFR by Schwartz formula. BP-GFR relations from visits 1 and 2 were analyzed cross-sectionally (e.g., V1 GFR vs SBP) and longitudinally (e.g., GFR V2-V1 change vs SBP V2-V1 change). Variables related to adiposity, insulin resistance, parental history, diet, and demographics were also evaluated for relations with BP and GFR. Analyses included pearson correlation, one-way ANOVA, t-tests and chi-square.

Results:
In the cross-sectional analysis of BP and GFR, 1) higher V1 DBP quintile was associated with higher GFR (p=.0014, ANOVA), 2) children in highest SBP and DBP quintile had higher V1 GFR versus lower quintiles (SBP: 126.15+-18.81 vs 121.51 +- 17.90 ml/min/1.73m^2, p=.0181; DBP: 127.39+- 19.22 vs 121.32 +- 17.76 ml/min/1.73m^2 , p=.0027). There was no relationship between change in GFR and BP. GFR correlated with V1 BMI z score (r=0.13, p=0.003), V1 central fat % (r=0.15, p=0.0006), V1 and V2 HOMA-IR (r_s=0.196, p=0.0000; r_s=0.185, p=0.0000). Change in GFR correlated with change in BMI z score (r=0.13, p=0.003) and change in HOMA-IR (r_s=0.29, p=0.0000).

Conclusions:
Higher BP is associated with higher GFR. There is no evident relationship between BP and GFR change over time. Higher adiposity is associated with higher GFR. Future analyses will adjust for adiposity measures when evaluating BP-GFR relationships.

AGM 2015
MONTREAL, QC

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-117

SELF REPORTED FLUID INTAKE & HYPERTENSION IN CKD PATIENTS

George Vitale, Pietro Ravani, Jeffrey Ma
University of Calgary

Introduction
Hypertension is a common complication of patients with chronic Kidney disease (CKD). Current guidelines suggest a low sodium diet and diuretics, amongst other interventions, to treat hypertension in patients with CKD. It is unknown whether degree of fluid intake has any effect on the Blood pressure (BP) of patients with CKD.

Methods
This was a cross sectional study on 117 consecutive patients with CKD attending our Multidisciplinary CKD clinic. Patients were given a questionnaire consisting of 2 parts. The first asked the patient how many cups of fluid they drank per day (1 cup = 250 ml). The second question was about why they drank the amount they drank. At the time of the visit BP, weight as well as a number of clinical and laboratory data were collected. Univariate and multivariate analysis were performed to see the effect of self reported fluid intake (SRFI) on BP.

Results
There was a gradual increase in BP detected with increasing SRFI. Table 1.

By univariate analysis only age, prescence of proteinuria as well as SRFI predicted higher Mean arterial blood pressures (MAP)

By multivariate analysis proteinuric patients with high SFRI predicted higher Mean arterial pressures (MAP). The correlation was significant albeit a weak one (adjusted r2=0.12)

Only 22% of the cohort drank because they were thirsty.

Conclusion
In proteinuric patients with CKD a weak correlation exist between SRFI and MAP. Randomized controlled trial is needed to answer this important practical question.

P-117

SFRI (L/d)	N	SBP (mm/Hg)	DBP (mm/Hg)	no BP meds	no Diuretics
≤ 1	11	124± 20	67±12	3.27	0.64
>1-1.5	23	127± 20	65 ±11	3.39	0.87
>1.5-2	46	132± 20	70± 12	3.15	0.78
>2	35	138± 16	76± 13	3.24	0.82

Table 1: Self reported fluid intake (SRFI) and blood pressure

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-118 - Withdrawn

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-119

TRANSPLANTING KIDNEYS FROM DONATION AFTER CARDIAC DEATH, A SINGLE CENTER 5 YEAR EXPERIENCE

Kevin C Wen, Soroush Shojai, Sita Gourishankar, Sandra M Cockfield, Allan G Murray, Patricia Campbell, Richard Grynoch
University of Alberta

BACKGROUND: Short-term outcomes of DCD kidney transplantation (KTX) have been demonstrated to be similar to donation after brain death(DBD) KTX outcomes.

OBJECTIVE: To compare outcomes of DCD and DBD KTX

METHODS: All cases of adult DCD KTX from 2009 to 2015 performed at our center were matched 1:2 to control group of DBD KTX by age, gender, and year of transplantation. Paired t-test was performed to compare mean eGFR at 6 month. Chi-squared test was performed to compare Delayed graft function(DGF). Log-rank tests were performed to compare biopsy-proven rejection free survival, graft survival and overall patient survival.

RESULTS
25 DCD KTX were performed at our center from 2009 to 2015. Baseline donor and recipient characteristics of DCD and DBD are not statistically different, with median follow-up of 883 days. There were more DGF in DCD compared to DBD(68% vs 26%, $p < 0.01$). There was one perioperative death among DCD cases. Mean eGFR at 6 months are not statistically different between DCD and matched DBD cases(52ml/min vs 58ml/min, $p = 0.18$). Biopsy Proven Rejection($p=0.46$), Graft survival($p=0.48$), and patient survival($p=0.80$) are not significantly different between groups(Fig.1)

CONCLUSIONS
5-year short-term DCD KTX outcomes of mean eGFR achieved, biopsy proven rejection, graft survival, and patient survival are similar to DBD KTX performed at our center since its inception in 2009. Outcomes of DCD KTX performed at our center are consistent with reports in the literature. DCD is an effective program of increasing donor pool without compromising short-term transplant outcomes.

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

P-119

Fig 1a

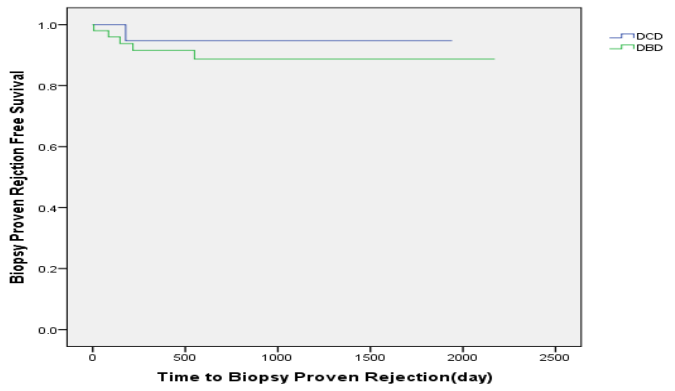


Fig 1b

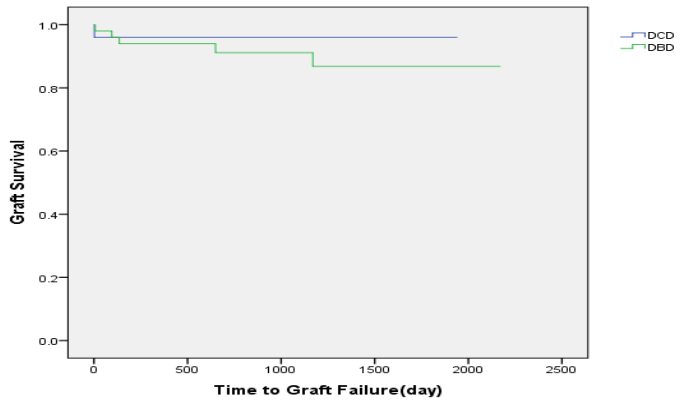


Fig 1c

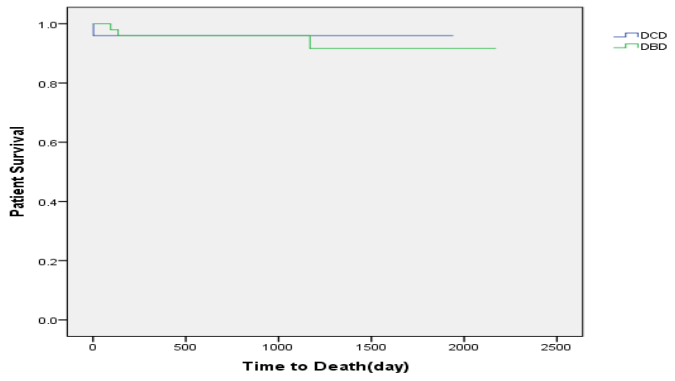


Fig 1a. Kaplan Meier Curve of death censored and graft failure censored biopsy proven rejection free survival comparing DCD to DBD KTX(p=0.46).

Fig 1b. Kaplan Meier Curve of death-censored graft survival comparing DCD to DBD KTX(p=0.48).

Fig 1c. Kaplan Meier Curve of overall patient survival comparing DCD to DBD KTX(p=0.80).

AGM 2015
MONTREAL, QC

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-120

A LONGITUDINAL STUDY EXAMINING THE CHANGE IN FUNCTIONAL INDEPENDENCE OVER A ONE-YEAR PERIOD IN ELDERLY INDIVIDUALS WITH A FUNCTIONING KIDNEY TRANSPLANT

Janine F. Farragher, Kevin Yau, Sang Joseph Kim, Olusegun Famure, Sarbjit V. Jassal
University Health Network

Background:
The presence of chronic disability is associated with prolonged hospitalization, and mortality, in older adults. Fluctuations in disability levels over time may predict future chronic disability**.** Single center cross-sectional data in 82 older adults living with renal transplants showed 54% patients had baseline functional disability (need for assistance with self-care tasks) and 21% a one-year history of falls. Changes in disability states over time have not been assessed.

Objectives:
The primary objective of this study was to assess the change in functional independence over a one-year period in older adults living with functioning renal transplants.

Methods:
Single center, prospective, longitudinal design. All 82 patients were eligible to participate in the one-year follow-up study. Functional independence was measured with the Barthel ADL (Activities of Daily Living) Index, and the Lawton-Brody IADL (Instrumental Activities of Daily Living) interview. Patients were asked to report the number of falls they had experienced in the previous year, and physical and cognitive functioning were assessed using validated tools.

Results:
Eleven patients were unavailable for recruitment, and 1 was deceased. 65/70 recruited patients agreed to participate in the follow up study (mean age 70.6 ± 4.4, 55% male, 53% diabetic). Of these 33 (51%) had functional disability at baseline. Over the one-year period, 15 (23%) patients experienced functional recovery over time, while 23 (35%) experienced decline. 6/17 (35%) patients who reported a fall at baseline, fell again during the one-year follow-up period. An additional 12 individuals, previously nonfallers, experienced one or more falls.

Conclusions:
Changes in disability states are common amongst older adults living with renal transplants. Future research is needed to explore risk factors and treatments for disability in this population, as it negatively affects patient and caregiver quality of life and predicts hospitalization, long-term care admission and mortality.

AGM 2015
MONTREAL, QC

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-121

USE OF SPIRONOLACTONE FOR TREATMENT OF HYPOKALEMIA IN PERITONEAL DIALYSIS PATIENTS

Amit Langote, Brendan McCormick, Swapnil Hiremath
The Ottawa Hospital

Background: Hypokalemia is common in peritoneal dialysis (PD) patients and is associated with increased cardiovascular and all-cause mortality. It is usually treated with oral potassium supplements, but this is limited by side effects which often lead to non-compliance.

Objective: To study the efficacy of the aldosterone antagonist spironolactone for treatment of hypokalemia in PD patients at a single tertiary care Centre.

Methods: Retrospective chart review of PD patients started on Spironolactone between January 2003 and July 2013 was done. Demographics, co-morbidities, lab parameters including serum potassium changes were studied pre- and 2 month's post-initiation of spironolactone.

Results: Most of the 53 patients identified were elderly (average age 64.4 years), Caucasian (n=30), diabetic (n=31), and nearly all were hypertensive (n=51). Median dose of spironolactone used was 25 mg (range 12.5 - 100 mg). Spironolactone caused a statistically significant rise (p <0.001) in potassium (average increase of 0.5 mmol/L), irrespective of the indication for which it was used (Table 1). There were no episodes of hyperkalemia. It also significantly reduced systolic blood pressure (p =0.002) with near significant reduction in diastolic pressure (p=0.08). There was no change in creatinine or weight in these patients suggesting that there was no change in residual kidney function or volume status during the study period.

Conclusions: Spironolactone is safe and effective in treating hypokalemia in PD patients. It is also an effective antihypertensive agent and merits further study in the PD population.

Table 1: Pre and post Spironolactone changes in the entire study population (N=53)

	Pre	Post	P value
K (mmol/l)	3.74 +/- 0.45	4.21+/-0.47	<0.001
Creatinine(mmol/l)	698.25+/-299.72	699.07+/-278.86	0.99
SBP (mm Hg)	153.43+/- 18.43	136.78+/-24.48	0.002
DBP (mm Hg)	83.6+/-14.41	77.9+/-13.51	0.08
Weight (Kg)	85.35+/-17.83	85.35+/-17.58	0.98

SBP= Systolic blood pressure, DBP= Diastolic blood pressure

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-122

HYPOMAGNESEMIA IS ASSOCIATED WITH VASCULAR CALCIFICATION IN PERITONEAL DIALYSIS PATIENTS

Amber O. Molnar (1), Mohan Biyani (1), Ian Hammond (1), John Paul Harmon (1), Susan Lavoie (1), Mccormick Brendan (1), Manish M Sood (1), Jessica Wagner (2), Deborah L. Zimmerman (1)
(1) University of Ottawa
(2) Ottawa Hospital Research Institute

Background: Coronary artery calcification (CAC) is highly prevalent among dialysis patients and is associated with increased cardiovascular and all cause mortality. Magnesium (Mg) inhibits vascular calcification in animal and in-vitro studies but whether the same effect occurs in humans is uncertain. Commonly used peritoneal dialysis (PD) solutions are low in Mg, which can lead to hypomagnesemia.

Objectives: To determine if hypomagnesemia is associated with increased vascular calcification in the PD population.

Methods: We conducted a cross-sectional study that enrolled 86 prevalent PD patients from the Ottawa Hospital. Patients had to be on PD for a minimum of 3 months and could not be frequently switching between hemodialysis and PD. A blinded radiologist measured patients' aortic calcification scores on lateral lumbar x-rays, a validated surrogate for CAC.

Results: After excluding missing values, 79 patients were analyzed. The mean serum Mg was 0.84 mmol/L (minimum and maximum values 0.44 and 1.63 mmol/L, respectively) and mean aortic calcification score 16, highest possible score 36 (minimum and maximum scores 0 and 36, respectively). A higher serum Mg level was associated with a lower aortic calcification score in an unadjusted analysis (adjusted R^2= 0.055, unstandardized coefficient (B)= -13.9, p=0.021). Pre-specified variables demonstrating a significant bivariate correlation with aortic calcification score (Pearson correlation, p<0.2) were included in a multi variable linear regression model. After adjustment for age, serum phosphate, calculated low-density lipoprotein cholesterol, and diabetes, a significant association between serum Mg and aortic calcification persisted (adjusted R^2= 0.389, B= -17.4, standardized coefficient (Beta)= -0.326, p=0.001). This means that a 0.1 mmol/L increase in serum Mg is independently associated with a 2 point decrease in aortic calcification score.

Conclusions: These data suggest that Mg may inhibit vascular calcification. Interventions that increase serum Mg and their effect on vascular calcification warrant further testing in the PD population.

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-123

CRESCENTIC FIBRILLARY GLOMERULONEPHRITIS WITH STRONGLY POSITIVE ANTI-GLOMERULAR BASEMENT MEMBRANE ANTIBODIES AND LINEAR IGG STAINING : CASE REPORT

Jeffrey Ma (1), Louis Girard (1), Suchin Worawichawong (2), Hallgrimur Benediktsson (1), George Vitale (1), Kevin McLaughlin (1)
(1) University of Calgary
(2) Ramathibodi Hospital, Mahidol University

Fibrillary glomerulonephritis (GN) is a rare cause of glomerular renal disease. This disease can mimic many other diseases on light microscopy, including but not limited to, membranous, mesangioproliferative, membranoproliferative, and crescentic glomerulonephritis. We present the first documented case of crescentic fibrillary GN with strongly positive serum Anti-GBM titres. This 45 year old female presented with a six week history of malaise with a one week history of decreased urine output and edema. Serum creatinine was markedly abnormal at 1023 µmol/L with urine microscopy noting dysmorphic red blood cells and red blood cell casts. Kidney biopsy subsequently noted cellular crescents involving 15 out of 16 glomeruli. The Congo-red stain was negative. The immunofluorescence showed strong linear IgG staining, 3+ out of 3. Electron microscopy noted randomly arranged fibrils measuring 11 – 20 nanometres in width deposits in the glomerular basement membrane and the mesangium consistent with fibrillary GN. Her serum anti-GBM titre was strongly positive at >4000 KEU/L. The patient was subsequently started on hemodialysis and treated with plasmapheresis, high dose intravenous corticosteroid pulse along with intravenous Cyclophosphamide. She was subsequently transitioned to oral corticosteroids (1mg/kg prednisone) with continuing intravenous Cyclophosphamide for induction therapy. The patient did not recover her renal function, however her follow-up anti-GBM titre normalized. She subsequently received a cadaveric renal transplant approximately 1 year after her initial presentation and has had no evidence of recurrence. **Conclusion**: We describe the first case of co-existent Anti-GBM disease and fibrillary GN characterized by extremely high Anti-GBM titres as well as crescentic disease. Best medical management or immunosuppression for this condition is currently not known.

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-124

DABIGATRAN TOXICITY AND CLEARANCE WITH HEMODIALYSIS

Dorothy Thomas, Bonnie Richardson
University of Saskatchewan

Dabigatran is a novel oral direct thrombin inhibitor, recently approved for thromboembolism prophylaxis, venous thromboembolism treatment, and atrial fibrillation stroke prevention; however, it is contraindicated if the EGFR<30 mL/min and extreme caution is warranted if the EGFR<60 mL/min. We report a case of dabigatran toxicity in a patient with previously normal renal function who presented with an acute kidney injury and digoxin toxicity. Numerous coagulation reversal agents, including fresh frozen plasma, vitamin K, prothrombin complex concentrate, and activated Factor VII were administered without clinical effect. This patient then received six daily high-flux intermittent hemodialysis sessions to clear the dabigatran, after which his coagulations parameters recovered to baseline.

In this patient setting, hemodialysis was a challenging option due to the high risk for periprocedural bleeding, acute kidney injury, and risks for significant arrhythmias due to concomitant digoxin toxicity and hyperkalemia. For many other toxicities, the expected response to hemodialysis is known; however, we were the first center in Canada to attempt dabigatran dialysis. Challenges included measurement of dabigatran levels, monitoring of coagulation parameters and predicting dabigatran's pharmacokinetic response to dialysis.

We have confirmed that hemodialysis can successfully clear dabigatran. However, the insertion of a large bore internal jugular hemodialysis catheter caused a periprocedural hematoma, which fortunately did not lead to catastrophic consequences.

Not only do clinicians need to use extreme caution when prescribing dabigatran to patients with established chronic kidney disease, they must be vigilant with patients who have established risk factors for kidney disease. Frequent monitoring of renal function is mandatory in patients with existing kidney disease prescribed dabigatran, and is strongly recommended in high-risk patients without kidney disease. Lastly, development of antidotes for the novel anticoagulants is a current focus of research that will help mitigate the risk of bleeding in patients such as ours.

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-125

VITAMIN D AND KIDNEY TRANSPLANT OUTCOMES: A SYSTEMATIC REVIEW

Deborah Zimmerman (1), Caitlin Hesketh (2), Greg Knoll (2), Amber Molnar (1), Anne Tsampalieros (3)
(1) Ottawa Hospital
(2) University of Ottawa
(3) Children's Hospital of Eastern Ontario

BACKGROUND:
In addition to its role in bone-mineral metabolism, vitamin D has immunomodulatory effects. Many renal transplant recipients have vitamin D insufficiency, which has unknown effects on renal transplant function. Our objective was to assess the influence of vitamin D on renal transplant outcomes.

METHODS/DESIGN:
We conducted a systematic review to assess the relationship between vitamin D status and graft function and acute rejection. We searched MEDLINE, EMBASE, AMED and CINAHL from 1990 to July 2014 for randomized and observational studies on adult renal transplant patients who received vitamin D supplementation or had serum vitamin D concentrations measured after transplant.

RESULTS:
Our search identified 1412 abstracts, of which 55 underwent full text review. Eighteen studies met inclusion criteria; 11 measured serum vitamin D concentration and 7 assessed the effect of vitamin D supplementation. There were 17 observational studies and 1 randomized trial. The study results could not be combined quantitatively due to heterogeneity. For studies that measured vitamin D concentration, vitamin D sufficiency was associated with improved renal function and lower acute rejection rates in 7/10 and 3/5 studies, respectively. For studies assessing vitamin D supplementation, 2/6 showed significantly improved renal function and 1/2 showed lower rates of acute rejection. Only active vitamin D/analogues versus cholecalciferol were associated with improved transplant outcomes.

CONCLUSION:
There is a variable effect of vitamin D on renal transplant outcomes reported in the existing literature. Adequate serum vitamin D concentration was more consistently associated with improved renal function than vitamin D supplementation. This may reflect: 1) greater 1,25-hydroxvitamin D production by well functioning grafts or 2) unknown achievement of therapeutic levels in supplement trials. The optimal dose and formulation for vitamin D supplementation in renal transplant patients remains unknown. Randomized trials are required to better assess the relationship between vitamin D and renal transplant outcomes.

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-126

THE CANADIAN CHILDHOOD NEPHROTIC SYNDROME (CHILDNEPH) PROJECT

Susan Samuel (1), Michele Zappitelli (2), Catherine Morgan (3), Cherry Mammen (4), Allison Dart (5), Andrew Wade (1), James Tee (6), Shannon Scott (3), Maury Pinsk (3), Rulan Parekh (7), Alberto Nettel-Aguirre (1), Roxanne Miller (1), Anne-Laure Lapeyraque (8), Kyle Kemp (1), Silviu Grisaru (1), Colette Girardin (9), Pavel Geier (10), Guido Filler (11), Janusz Feber (10), Robin Erickson (12), Allison Eddy (4), Martin Bitzan (2), Genevieve Benoit (8), Steven Arora (13)
(1) University of Calgary (2) McGill University (3) University of Alberta
(4) University of British Columbia (5) University of Manitoba (6) IWK Health Centre
(7) University of Toronto (8) Hopital Sainte-Justine
(9) Centre Hospitalier Universitaire de Sherbrooke - Fleurimont
10

Background:
Evidence-based clinical practice guidelines are available for childhood nephrotic syndrome. However, dose and duration of steroid treatment for first presentation and relapses are variable among physicians and care centres. Reasons for variability and how variability affects patient outcomes are unknown.

Objective:
This mixed methods study will determine centre-, physician-, and patient-level factors associated with cumulative steroid exposure and length of steroid treatment.

Methods:
The quantitative component is a national (13 centre) prospective observational cohort study of 400 steroid-sensitive children over 2.5 years. Qualitative focus groups with nephrology team members (MDs, RNs, pharmacists) at each site will provide an understanding of the attitudes, beliefs and local factors driving treatment variation. Our analytic approach will integrate quantitative and qualitative results to explain care variability.

Results: To date, six centres have consented 54 patients (30M, 24F; median age 4.1 years, IQR 2.5-6.9). Median cumulative steroid dose (in mg/m^2) for: first presentation=3,413 (range: 521-5,096); first relapse=1,190 (range: 209-1,998); second relapse=1,287 (range: 650–3,360). Median length of treatment (days) for first presentation=109, IQR 78-148. Eight patients have required the use of second line agents. Six sites completed focus groups. Emerging themes explaining treatment variability are physician preferences based on prior training and experience, and the need to individualize therapy for patients.

Conclusions: This is the first national, Canadian population-based evaluation of treatment of children with nephrotic syndrome. Early results suggest wide variation in steroid prescriptions for first presentation and relapses. Physician factors play a key role in care variability.

AGM 2015
MONTREAL, QC

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-127

EVALUATION OF POST-DISCHARGE RENAL FUNCTION MONITORING PRACTICE IN CRITICALLY ILL CHILDREN

Erin Hessey (1), Kelly Benisty (1), Marc Dorais (2), Philippe Jouvet (3), Jacques Lacroix (3), Ana Palijan (1), Veronique Phan (3), Michael Pizzi (1), Michael Zappitelli (1)
(1) McGill University Health Centre
(2) StatSciences Inc
(3) CHU Sainte-Justine, Université de Montréal

Background: Current standard of care is not to follow serum creatinine (SCr) after a pediatric intensive care unit (PICU) hospitalization discharge (DC). Post-PICU SCr monitoring practice is unclear in children due to lack of data. This information is needed before developing knowledge transition strategies and guidelines for acute kidney injury (AKI) follow-up.

Objectives: Determine 1) SCr monitoring practice post-PICU/hospital DC; 2) if practice differs by AKI status.

Methods: Two retrospective cohort studies: 1) Database cohort (DB): n=2500 from two Montreal PICUs; 2) Follow-up cohort (FU): n=178 past (5-7 years ago) PICU patients in a long-term study. Exclusions: cardiac surgery; pre-existing diagnosis/medicated for chronic kidney disease (DB study only). Baseline SCr: lowest 3 months pre-PICU; when unknown, estimated by an age-dependent GFR equation (Hoste et al) and 50th-percentile GFRs (Piepsz et al). AKI definition: KDIGO. DB cohort: calculated proportion with SCr measured from PICU to hospital DC; proportion with unresolved AKI at hospital DC. FU cohort: calculated proportion with SCr measured post-hospital DC. Compared AKI vs. non-AKI(chi-square).

Results: DB cohort: (n=1617 with known AKI status; mean±SD PICU age=6.5±5.8 years; PRISM (mortality) score=7.7±6.2; 44% female; 317 (19.6%) AKI). 767/1617 (47.4%) had SCr measured between PICU and hospital DC (55.8% (177/317) AKI; 45.4% (590/1300) non-AKI; p=0.001). Of these, 2.9% non-AKI versus 20.9% AKI patients had unresolved AKI at hospital DC (p<0.001). FU study: (n=170 with data; mean±SD PICU age=4.6±5.3 years; 43.5% female). 106 (62%) had SCr measured post-hospital DC with no AKI vs. non-AKI difference (p=0.81).

Conclusions: >50% PICU patients do not have SCr measured before hospital DC. Hospital DC unresolved AKI is common in patients who developed AKI in the PICU; however, decision to measure SCr post-hospital DC does not seem dependent PICU AKI status. Future work must elucidate long-term effects of child AKI and factors motivating post-discharge renal function follow-up practice.

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-128

THE SAFETY AND EFFICACY OF MINERALOCORTICOID RECEPTOR ANTAGONISTS IN PATIENTS WHO REQUIRE DIALYSIS: A SYSTEMATIC REVIEW AND META-ANALYSIS

Michael Walsh (1), Kevin Quach (1), Lyubov Lvtvyn (1), Colin Baigent (2), Joe Bueti (3), Amit Garg (4), Carmel Hawley (5), Richard Haynes (2), Braden Manns (6), Vlado Perkovic (7), Ron Wald (8)
(1) McMaster University
(2) Oxford University
(3) University of Manitoba
(4) Western University
(5) Princess Alexandra Hospital
(6) University of Calgary
(7) George Institute
(8) University of Toronto

Background and Objectives:
Patients who require dialysis are at high risk for cardiovascular mortality. Mineralocorticoid receptor antagonists (MRA), such as spironolactone and eplerenone, may reduce cardiovascular mortality. We conducted a systematic review and meta-analysis of randomized controlled trials that evaluated the effect of MRAs on cardiovascular death in dialysis patients.

Design, setting, participants, & measurements:
We searched electronic databases of citations for randomized controlled trials comparing a MRA to either placebo or usual care in adults who required dialysis.

Results:
Seven relevant trials including 729 patients were identified. For participants treated with a MRA, compared to controls, the relative risk (RR) of cardiovascular mortality was 0.34 (95% confidence interval [CI] 0.15 to 0.75]) and the RR of all-cause mortality was 0.40 (95% CI 0.23 to 0.69). However, effects on both cardiovascular mortality and all-cause mortality were either attenuated in sensitivity analyses to understand the potential effect of losses to follow-up and trials at high risk of bias. Additionally, the RR of hyperkalemia for MRA treatment was 2.91 (95% CI 1.04 to 8.14) suggesting the potential for harm.

Conclusions:
Given the possible benefits MRAs hold as well as their potential harms and the limitations of the current literature, large, high quality trials are required to understand the net effect of MRAs in dialysis patients.

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-129 - Withdrawn

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-130

TAZ AND YAP INHIBITION AS A NOVEL RENAL ANTI-FIBROTIC STRATEGY

Stephen Szeto (1), Masahiro Narimatsu (2), Ahmad Sidiqi (1), Mingliang Lu (1), Jeffrey Wrana (2), András Kapus (1), Darren Yuen (1)
(1) St. Michael's Hospital
(2) Mount Sinai Hospital

BACKGROUND:
Fibrosis is responsible for the progression of most forms of chronic kidney disease. Driven largely by transforming growth factor-β (TGF-β) signalling, fibroblast activation into scar-producing myofibroblasts is crucial for fibrogenesis. While TGF-β-induced fibroblast activation is known to be mechanoregulated, with soft matrix mimicking a healthy kidney impeding TGF-β responsiveness, the underlying mechanisms remain poorly defined. TAZ and YAP are homologous, mechanosensitive transcription co-factors with TGF-β regulatory effects whose nuclear localization and activity are regulated by matrix stiffness.

OBJECTIVE:
To examine if matrix stiffness regulates TGF-β signalling via TAZ/YAP, and to test if TAZ/YAP inhibition can attenuate renal fibrosis.

METHODS:
The effects of matrix stiffness on TAZ/YAP localization and TGF-β/Smad signalling were examined in renal fibroblasts cultured on soft (2 kPa) and stiff (100 kPa) gels. To test the effect of TAZ/YAP inhibition, fibroblasts and mice were treated with verteporfin, a drug used clinically for macular degeneration treatment with newly discovered TAZ/YAP inhibitory properties.

RESULTS:
In fibroblasts, TAZ/YAP localize to the nucleus on stiff gels (akin to fibrotic kidneys) while exhibiting diffuse staining on soft gels (akin to healthy kidneys). Although stiffness does not alter TGF-β-induced Smad2 phosphorylation, soft matrix impaired TGF-β-induced Smad2/3 nuclear accumulation and downstream Smad transcriptional activity. TAZ/YAP inhibition with verteporfin similarly blocked TGF-β/Smad signalling, inducing a loss of TAZ/YAP that was associated with a subsequent loss of Smad2/3. *In vivo*, verteporfin reduced renal myofibroblast accumulation and collagen deposition in unilateral ureter obstructed mice.

CONCLUSIONS:
Our data suggest that: (1) renal fibrogenesis is driven by both mechanical and chemical stimuli, an effect mediated by TAZ/YAP and Smad2/3, and (2) TAZ/YAP inhibition with verteporfin represents a powerful new anti-fibrotic treatment strategy.

AGM 2015
MONTREAL, QC

Canadian Society of Nephrology/
Société canadienne de néphrologie
CSN/SCN

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-131

VANCOMYCIN INDUCED ACUTE INTERSTITIAL NEPHRITIS: A CASE REPORT

Rami El Fishawy
CSSS Pierre De Saurel

Acute interstitial nephritis (AIN) accounts for up to 25% of acute kidney injury (AKI). Drugs represent about 75% of causes of AIN and antibiotics are responsible for one third of these cases.

We report a case of 58 years old male diabetic patient with normal renal function who develops cellulitis of the second left toe. Culture of the wound reveals clindamycin resistant staph aureus. He is treated with I.V. vancomycin. Three weeks later, he presents with progressive dyspnea, fatigue, malaise, loss of appetite, swollen legs with rash. Physical examination shows a toxic patient, with tachypnea, mild fever (37,9ºC), bilateral basal crepitations and bilateral maculopapular eruption of both lower limbs with mild oedema. Lab work reveals increased serum creatinine (226 umol/L), mild anemia, normal total leucocytic count with eosinophilia (1.1%), high CRP and high vancomycin level in blood (31.3 mg/L). Urine analysis shows mild proteinuria and microscopic hematuria. Immunological profile is normal as well as renal ultrasound.

The occurrence of AKI associated with the classical triad of fever, rash and eosinophilia are in favour of AIN.

Serial Gallium scan shows persistent retention of the radioactive material in the upper half of both kidneys at day 5 confirming the diagnosis of AIN.
Vancomycin is stopped and replaced with cephazolin. Prognosis is excellent with progressive improvement of renal function till normalization of serum creatinine and disappearance of rash without treatment within few weeks.
The occurrence of AKI following vancomycin administration, the presence of clinical, laboratory and radiological evidence, the absence of other aetiology of AKI and the complete recovery after stopping the drug, all are in favor of AIN.
As vancomycin is widely used in the treatment of methicillin resistant staph aureus and other resistant gram positive organisms, we should be aware of this possible complication even in a patient with normal function.

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-132

CHARACTERIZING THE URINARY PEPTIDOME TO INFER PROTEASE ACTIVITY IN THE KIDNEY

Ana Konvalinka (1), Julie A.D. Van (2), Ashley Di Meo (2), Ihor Batruch (3), Eleftherios P. Diamandis (2), James W. Scholey (1)
(1) Toronto General Hospital, University Health Network
(2) University of Toronto
(3) Mount Sinai Hospital

BACKGROUND:
The urinary peptidome includes biologically active peptide sequences (e.g. angiotensin), naturally occurring low-molecular-weight proteins (e.g. cytokines) and products of degradation via proteolysis (e.g. collagen fragments). Accordingly, it represents a unique window to study proteolytic activity in the kidney from the diversity and abundances of peptides identified in a given sample. Yet, only a few studies have described the healthy urinary peptidome as well as the proteases by which these peptides were generated.

OBJECTIVES:
We sought to characterize the healthy urinary peptidome and to identify potential proteases responsible for peptidome generation.

METHODS:
We collected two urine samples on different days from a healthy volunteer. Peptides (<10 kDa) were extracted, fractionated, desalted and injected onto a liquid chromatography column coupled to Q-Exactive mass spectrometer. Peptide Extractor (PepEx) and Peptidomic Enzyme Tabulator (PEnTab) were used to map peptides along the original protein sequence and to infer proteases that formed these peptides.

RESULTS:
We identified 2067 peptides from 422 proteins. As measures of intra-individual biologic reproducibility, 48% and 77% of peptides and proteins respectively were shared between both samples. Uromodulin, collagen alpha-1(I) and alpha-2(I), and clusterin were among the most abundant proteins likely derived from the kidney. Peptide mapping by PepEx highlighted preferential digestion near the C-terminus for all four proteins. Many collagen fragments however were found through the lengths of the proteins, likely due to sequence repeats inherent in collagen. PEnTab revealed plasmin, trypsin and tissue kallikrein as the top peptidomic protease candidates.

CONCLUSIONS: In summary, our preliminary findings support the role of urinary peptidomics in elucidating endogenous protease participation and specificity in the healthy kidney. Future studies will examine urinary peptidomes from healthy controls and patients with early kidney disease, in order to uncover mechanisms active early in disease development and potential urine disease markers.

Abstracts - Poster Presentation

Room: Fontaine A – G / Viewing during all coffee breaks
Presenters available at the board on Saturday, April 25th, 2015 / 11:15-12:30

P-133

CO-EXISTENT CRESCENTIC ANCA-POSITIVE GLOMERULONEPHRITIS AND MEMBRANOUS NEPHROPATHY IN A PATIENT TREATED FOR WILSON'S DISEASE WITH PENICILLAMINE

Jeffrey Ma (1), Louis Girard (1), Sachin Shah (2), Davide Salina (3), Hallgrimur Benediktsson (1), Kevin McLaughlin (1)
(1) University of Calgary
(2) University of Sasketchewan
(3) University of British Columbia

D-Penicillamine (DP) is indicated for the treatment of Wilson's disease. Glomerular disease has been reported with DP and include membranous glomerulonephritis (MGN) and to a lesser extent, minimal change disease and ANCA associated glomerulonephritis (AAGN). We report the first case of a patient with Wilson's disease with co-existing AAGN and MGN in the setting of DP treatment. This is a 19 year old female who had neurological and hepatic involvement of Wilson's disease on DP. She was noted to have acute kidney injury with a creatinine rise from 65 µmol/L to183 µmol/L in the setting of a urine analysis noting greater than 3 g/L of protein with urine microscopy noting dysmorphic red blood cells. Her renal insufficiency was discovered on monitoring blood work and the patient denied new clinical symptoms. Serum ANCA anti-myeloperoxidase titre was 35 KEU/L with 24 hour urine collection of 2.28 grams of protein/day. Renal biopsy noted segmentally necrotic glomeruli (11/24) with circumferential crescents (7/24). Silver stain displayed segmental spike formation and immunofluorescence stained for IgG (3+), kappa (1+), lamda (1+) and C3 (2+). IgM, IgA and C1q staining were negative. Electron microscopy revealed sub-epithelial deposits with associated spike formation and podocyte effacement. The patient was managed with cessation DP, administration of high dose intravenous corticosteroid pulse along with intravenous Cyclophosphamide. She was subsequently transitioned to oral corticosteroids with ongoing intravenous Cyclophosphamide for maintenance therapy. At three months follow-up, there was complete remission and she was transitioned to maintenance therapy. With regards to her WD, she was started on Trientine.

Conclusion: We present the first case of co-existent AAGN and MGN felt secondary to DP use in a patient with Wilson's disease. Withdrawal of DP along with immunosuppression for the crescentic glomerular disease was effective in preserving renal function.