CELEBRATE PEDIATRIC RESEARCH DAY ABSTRACTS MARCH 9, 2012

ABSTRACT #1	SPEAKER: Dr. Sharon Yong	Resident Year 4	Department of Pediatrics

SICKLE CELL DISEASE AND CHRONIC LUNG INJURY

Sharon Yong, M Chilvers. Division of Respirology

Sickle cell disease (SCD) is one of the most common autosomal recessive genetic diseases. Structural changes in hemoglobin (Hb) result in red blood cell fragility, hemolysis and microvascular obstruction, affecting multiple organ systems. Painful crises are common and can lead to organ damage. In the pediatric population, progressive lung disease and pulmonary complications are among the leading causes of morbidity and mortality. The case report describes a 9 year old female with SCD who develops acute chest syndrome (ACS). Common presenting symptoms of ACS, etiologies of ACS and the overall effect of ACS on lung function are discussed.

ABSTRACT #2	SPEAKER: Dr. Kelley Zwicker	Resident Year 4	Department of Pediatrics

CULTURE-POSITIVE EON SEPSIS IN NEWBORNS IN A LEVEL II NURSERY

Kelley Zwicker, P Tilley, P Thiessen. Pediatrics NICU & Microbiology

Guidelines outlining the use of antibiotic prophylaxis to prevent neonatal sepsis caused by Streptococcus agalactiae have resulted in significant gains in the treatment for "early-onset" neonatal sepsis (EONS). Although the incidence of EONS in the US has declined by approximately 80% since the inception of these guidelines, Canadian rates are not well defined. Moreover, there is concern about increased rates of EONS due to Escherichia coli, as well as about the development of antibiotic resistance. Approximately 600 newborns are admitted to our Level II Nursery per year. The proportion of those admitted for culture-proven EONS is presently unknown. The distribution of pathogenic bacteria responsible for EONS is also undefined. Some infants may have "contaminated" blood cultures and therefore receive unnecessary treatment. The purpose of this study was to determine the incidence of EONS in those infants admitted to our Level II nursery. Secondary objectives were to characterize patterns of bacterial susceptibility, specifically to antibiotics used to treat neonatal sepsis at our centre. This work was completed using a retrospective review. Ethical approval was obtained prior to data collection. The Microbiology Laboratory computer system was used to identify positive blood cultures from babies admitted to the Level II nursery over a 3-year period between 2007-2009. Admission criteria were: >33weeks gestation, birth weight >1500 grams, mild to moderate respiratory distress, infants requiring IV fluid, infants at risk for abnormal transition, cord pH <7.0, and infants with congenital anomalies requiring observation. Infants admitted from centers other than ours, and infants transferred to the nursery from the Level III NICU, were excluded. The incidence of EONS was determined, and the offending bacterial pathogens were characterized. The overall incidence of EONS was between 0.4 and 1.3% per year. Infection with coagulase-negative Staphylococcus was most common, and the second most common organism was Streptococcus agalactiae. Fortunately, all bacterial species were pan-sensitive. Overall, the incidence of culture positive EONS in our Level II nursery was extremely low.

ABSTRACT #3	SPEAKER: Dr. Kate Buckley	Resident Year 3	Department of Pediatrics

EVALUATION OF NIGHT FLOAT

K Buckley, , S Farhana, A Roberts. General Pediatrics

In 2009, the pediatrics residency program at the University of British Columbia (UBC) adopted a "night float" call system for overnight coverage of the Clinical Teaching Units (CTU). Night Float requires residents to attend to CTU patients overnight for five days a week for two consecutive weeks twice yearly. This was implemented in place of the traditional "1-in-4" call system, in which residents cross-cover the CTU once to twice weekly regardless of their scheduled monthly rotation. In our study, we distributed an online survey to three separate subgroups of the health care team that have encountered the night float system. These groups are the residents, nursing staff, and staff physicians. The surveys addressed three objectives our program considers to be important aspects of night float and are key to whether night float should be continued as a part of pediatric residency training. These include:1) The impact night float has on patient safety, quality, and, continuity of care.2) The impact night float has on resident quality of life and overall morale. 3)The impact night float has on resident education, patient exposure and quality of teaching. The surveys are original and have been developed based on the above objectives. They underwent face validity and were distributed using a Canadian-based online survey site with guaranteed confidentiality. Some preliminary results from these surveys will be presented.

ABSTRACTS - RESIDENT AND FELLOW BEST RESEARCH PAPER COMPETITION 2012

ABSTRACT #4	SPEAKER: Dr. Kristin Wynne	Resident Year 3	Resident Paper #1

PROLIDASE AS A BIOLOGICAL MARKER FOR PEDIATRIC EXTENSIVE CHRONIC GVH DISEASE AFTER ALLOGNENEIC STEM CELL TRANSPLANTATION.

Kristin Wynne, A Kariminia, M Krailo, D Wall, F Goldman, AL Gilman, KR Schultz. Division of Hematology/Oncology/BMT

Chronic graft-versus-host disease (GVHD) is an immune mediated condition that can occur post-hematopoietic stem cell transplant. It is defined by clinical criteria and no biomarkers currently exist to facilitate diagnosis and study of the disease. We used proteomic methods to identify a candidate plasma protein known as prolidase. We then validated prolidase on a larger sample of peripheral blood collected from patients aged 1 to 29 years post bone marrow transplant who had enrolled in the Children's Oncology group study, ASCT0031. Our unmatched cohort groups were divided by the presence or absence of extensive chronic GVHD post-transplant. Results of plasma prolidase concentrations by sandwich enzyme-linked immunosorbent assay (ELISA) demonstrate elevated levels in the late onset chronic GVHD cohort compared to late controls. We propose that prolidase merits further study as a novel candidate biomarker for chronic GVHD.

ABSTRACT #5 **SPEAKER: Dr. Kristopher Kang** **Resident Year 1** **Resident Paper #2**

CURRENT MANAGEMENT OF ECTOPIC ATRIAL TACHYCARDIA IN CHILDREN: A MULTI-CENTER EXPERIENCE

Kristopher T. Kang, Susan P. Etheridge, Michal J. Kantoch, Svjetlana Tisma-Dupanovic, David J. Bradley, Seshadri Balaji, Robert J. Hamilton, Anoop K. Singh, Bryan C. Cannon, Michael S. Schaffer, James E. Potts, Shubhayan Sanatani. Division of Cardiology

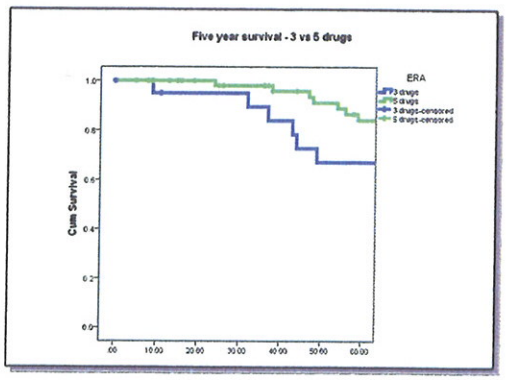
Background: Ectopic atrial tachycardia (EAT) is an uncommon cause of supraventricular tachycardia in children. Incessant EAT can cause tachycardia-induced cardiomyopathy. There is limited information regarding the clinical course and management of EAT with current antiarrhythmic medications including amiodarone and with routine use of catheter ablation. Objectives: To characterize current management strategies for EAT in children including the prevalence of spontaneous resolution and the role of catheter ablation.
Methods: This is a retrospective chart review of pediatric patients with EAT managed between January 2000 and November 2010 at 10 pediatric centers. Patients with structural heart disease or without clinical follow-up were excluded.
Results: There were 249 patients (154 M) with a median age of 7.2 years (1 day – 17.9 years). Cardiomyopathy was observed in 69 patients (28%). Resolution of EAT was achieved in 186 of 209 patients (89%). The remaining 40 patients continued to receive medical therapy with no EAT. Spontaneous resolution without ablation therapy was achieved in 72 of 209 patients (34%), including 50 of 72 patients (69%) less than 1 year of age at diagnosis. Antiarrhythmic medications were used for initial therapy in 154 patients with control of EAT in 111 patients (72%). Beta blockers were the most commonly used medications in 136 of 309 regimens (44%) and accounted for 56 of 111 effective regimens (50%). Amiodarone was used in 14 of 111 effective regimens (13%). Catheter ablation was performed in 134 patients overall and was successful in 108 of 134 patients (81%). The rate of EAT recurrence was lower with complex mapping compared to conventional mapping techniques (16% vs. 35%, p=0.0234).
Conclusions: EAT is managed successfully in most children despite no standardized approach. Spontaneous resolution is common for young children. Approaches to antiarrhythmic therapy are variable. Many patients have control of EAT with medications initially, however, catheter ablation is used for a majority of patients overall. Catheter ablation is commonly successful for older children with lower recurrence for ablation procedures that use complex mapping techniques.

ABSTRACT #6 **SPEAKER: Dr. Tanya Brown** **Div Hematology/Onc/BMT** **Fellow Paper #1**

OUTCOMES IN PEDIATRIC EWING SARCOMA

Tanya Brown 1, Chodchanok Vijarnsorn 2, , George G.S. Sandor 2, Jim Potts2, Ruth Milner3, Christopher Fryer 1. 1 Division of Hematology, Oncology & BMT 2 -Division of Pediatric Cardiology, 3- Clinical Research Support Unit, CFRI

Background/ Rationale: We describe a single institution experience of Pediatric Ewing Sarcoma 1978-2006. The management of these patients has changed during this period.
Objectives: 1) To determine the overall survival and disease free survival at 5 years and 10 years in the Ewing Cohort.**2)**To determine the overall survival and disease free survival in the pre and post Ifosfamide and Etoposide chemotherapy Eras.**3)**To determine the outcome in localized Ewing Sarcoma.**4)**To determine the salvage regimens and outcome of relapsed patients.
Methods: This was a retrospective chart review of all patients less than 17 years, diagnosed with Ewing sarcoma during 1978-2006 and treated at the British Columbia Children's Hospital (BCCH).
Results: We identified 80 cases for analysis, 21 patients managed with the 3 drug (VAC) regimen and 59 using the 5 drug regimen (VAC+ IE).There was no statistical difference in outcome between the two groups. The overall survival at 5 years was 80% and 60% at 10 years .There were 9/30 patients alive after disease recurrence. Only one patient with metastatic disease at diagnosis was salvaged compared to 8/17 with localized disease. Two of 5 patients with localized disease at diagnosis and at recurrence survived .There were 6/12 patients with metastatic relapse that survived and 2/6 with localized relapsed disease. Four of 10 patients with relapse survived following autologous stem cell transplantation. The average time of follow up from relapse was 57 months (13-185).
Discussion/ Conclusion: The late relapse beyond 5 years was clinically significant. The salvage therapy for patients with localized disease was more successful in the 3 drug regimens (3/5) versus the 5 drug regimen (5/12). The outcome in this pediatric Ewing Sarcoma cohort is better than in recent adult studies .A large UK adult cohort of over 300 patients had an overall survival of 64% at 5 years and 56% at 10 years (Pradhan et al 2011).Patients with extra-skeletal and skeletal Ewing sarcoma appeared to have similar outcomes (Pradhan et al 2011) but this was not assessed in our study due to small numbers. Our survival data is comparable to a smaller study of 17 pediatric Ewing patients at St Jude's hospital who had a five year survival of 77% (Gururangan S et al 1998).
References: 1) Nesbit ME. J Clin Oncol 1990; 8:1664-74). IESS I study (1973-1978) 2) Oncological outcomes of patients with Ewing's sarcoma: is there a difference between skeletal and extra-skeletal Ewing's sarcoma? Pradhan A, Grimer RJ 3-Spooner D, Peake D, Carter SR, Tillman RM, Abudu A, Jeys L. J Bone Joint Surg Br. 2011 Apr; 93(4):531-6. 3) Treatment of children with peripheral primitive neuroectodermal tumor or extraosseous Ewing's tumor with Ewing's directed therapy. Gururangan S, Marina NM, Luo X, et al. J Pediatr Hematol Oncol 1998; 20:655-61.



Characteristics	N (%) or Median (range)
Gender	
• Male	37 (46%)
• Female	43 (54%)
Age at Diagnosis (years)	10.9 (2.2-16.3)
Site of Primary Lesion	
• Lower extremities	22
• Upper extremities	9
• Head and neck	8
• Vertebra and spine	10
• Pelvis	19
• Chest wall and ribs	12
Metastasis prior treatment	23/80 (29%)
• Lung metastasis	19/23 (83%)
Radiation	63/80 (79%)
Dose of radiation (cGY) median, range	5000, (800-5600)
Radiation to chest	10/80
Autologous transplantation therapy	18
Year of Treatment	
• 1970-1979	7
• 1980-1989	23
• 1990-1999	28
• 2000-2011	22
Length of Chemotherapy Treatment (months)	12 (0-189)
Relapsed Patients	31 (39%)
Time to relapse (months)	19 (3-185)
Time to last follow-up (months)	87 (0-378)
Age at last follow-up (years) mean,SD	20 ± 7.7

Year of Diagnosis	3-5 drugs	Primary site	Status at Diagnosis	Salvage Management for Metastatic Relapse Chemotherapy Surgery	Autologous Transplant	Radiotherapy	Outcome
1982	3	Pelvis	Metastatic	DTIC(Dacarbazine) and 5FU	No	Adjuvant and Palliative	Died
1985	3	L5	Metastatic	Cyclo/TBI; Bleomycin, Oral Etoposide, Cisplatin	Yes	Palliative	Died
1988	5	L Chest	Metastatic	Carboplatin,Etoposide,Interferon Resection of lung nodules	No	None	Died
1993	5	R Humerus	Metastatic	Ifosfamide,Etoposide,Carboplatin	No	Adjuvant and Palliative	Died
1993	5	Pelvis	Metastatic	Hyperthermia ,High Dose Vit D	No	Palliative	Died
1999	5	Ischium	Metastatic	Cyclo/Topotecan	PBSC reinfusion	Palliative	Died
2000	5	Pelvis	Metastatic	Cyclo/Topotecan BuMel/Thiotepa/Amifostine	No	None	Died
2000	5	Pelvis	Metastatic	VICE/VADRIAC	No	None	Died
2001	5	Pelvis	Metastatic	Vinblastine + Celebrex Topotecan; Docetaxel; Oral Etoposide	No	Palliative	Died
2003	5	T9-10 Intraspinal	Metastatic	Cyclo/Topotecan x 10 cycles HuMel pre radiotherapy	Yes	Adjuvant	Alive
2003	5	Pelvis	Metastatic	Oral Cyclophosphamide Oral Etoposide Ifosfamide and Vincristine	Yes	Multiple Adjuvant and Palliative Rx	Died
2004	5	Pelvis	Metastatic	Cyclo/Topotecan ;Busulfan Melphalan	Yes	None	Died

Year of Diagnosis	3-5 drugs	Primary site	Disease at Diagnosis	Salvage Management for Localized Relapse Chemotherapy Surgery	Autologous Trans-plant	Radiotherapy	Outcome
1978	3	T6 Vertebrae	Localized	Chemotherapy	No	No	Alive
1984	3	L 9th Rib	Localized	Carboplatin,Melphalan, TBI	Yes	Adjuvant	Dead
1989	5	Pelvis	Localized	Ifosfamide/ Etoposide Carboplatin,Melphalan,Thiotepa	Yes	No	Died
1989	5	L Fibula	Localized	L Leg Amputation	No	No	Alive
1998	5	Chest	Metastatic	Progressed on VICE/VADRIAC	PBSC infusions	no	Died
2006	5	Pelvis	Localized	Hemipelvectomy	No	No	Dead

Year of Diagnosis	3-5 drugs	Primary site	Status at Diagnosis	Salvage Management for Metastatic Relapse Chemotherapy Surgery	Autologous Transplant	Radiotherapy	Outcome
1980	3	R Scapula	Localized	R shoulder amputation; Hyperbaric Oxygen; IV Cyclo	No	Adjuvant	Died
1983	3	L Femur	Localized	Ifosfamide,Etoposide,Cisplatin Carboplatin,Melphalan; L hip disarticulation	Yes	No	Alive
1986	3	R Fibula	Localized	Ifosfamide,Etoposide,Methotrexate Resection of lung nodules	No	No	Alive
1986	5	R Humerus	Localized	Wedge resection of lung nodule	No	None	Alive
1986	5	R Chest	Localized	Carboplatin,Etoposide,Melphalan	Yes	Adjuvant and Palliative Rx	Died
1988	5	Pelvis	Localized	Carboplatin, Etoposide	No	None	Died
1989	5	L Ulna	Localized	Cyclo/Etoposide/TBI	Yes	Adjuvant	Alive
1991	5	L Femur	Localized	Ifosfamide,Etoposide	No	Palliative	Died
1995	5	R Chest	Localized	Ifosfamide,Etoposide Cyclo/Topotecan	No	Adjuvant	Alive
1999	5	R Tibia	Localized	Cyclo/Topotecan,Rebeccamycin, Thiotepa,Vinblastine	No	Adjuvant and Palliative	Died
1999	5	L3 Para spinal	Localized	Topotecan	No	Palliative	Died
2004	5	L3 Intraspinal	Localized	Cyclo/Topotecan BuMel/Thiotepa	Yes	Adjuvant	Alive

ABSTRACT #7 **SPEAKER: Dr. Korshid Mohammad** **Div Neonatology** **Fellow Paper #2**

HYPOTENSION AND WHITE MATTER INJURY (WMI) IN PRETERM NEONATES

Khorshid Mohammad, MD, Kenneth Poskitt, MDCM, Vann Chau, MD, Ann Synnes, MDCM MHSc, Ruth E Grunau, PhD RPsych, Meisan Brown-lum, Janet Rigney and Steven Miller, MDCM MAS

Background: WMI is identified on MRI in >1/4 of preterm neonates. While WMI risk is not adequately predicted by gestational age (GA), preliminary data suggests that hypotension may increase the risk of WMI.
Objective: To determine 1) the association of symptomatic hypotension with WMI in the very low gestational age (VLGA) newborn, and 2) the *timing* and *context* of hypotension modifies this relationship.
Design/Methods: 118 preterm neonates (24-32 weeks GA) underwent MRI at a median of 32 weeks (IQ range: 30.3-33.6). The severity of WMI was scored using a validated system by a neuroradiologist blinded to clinical history.The severities of intraventricular hemorrhage (IVH) and cerebellar hemorrhage (CH) were also documented.Clinical information extracted from detailed chart review included: symptomatic hypotension defined as blood pressure <GA (by cuff, umbilical or peripheral arterial line) treated with fluid bolus or pressors, *context* of hypotension (occurring either (a) during sedation or (b) without sedation), *timing* of hypotension (either (a) early (72 hours of age) or (b) late (>72 hours). We used logistic regression analyses to determine the association of hypotension with the risk of WMI, IVH,& CH, adjusting for GA , age at MRI, SNAP score, days of ventilation, and infection.

Results: WMI was seen in 34 (29%) neonates, IVH in 56 (48%) and CH in 15 (13%).Symptomatic hypotension (≥1 episodes n=45 (38%)) was associated with a significantly increased risk of WMI (OR 4.7 CI 1.4 -16, P 0.013) in the multivariable model.
Hypotension episodes during sedation occurred in 56% (25/45). The risk of WMI was greater in the context of hypotension without sedation (OR 5.2; 95% CI 1.4 -19.4, P 0.014) compared to with sedation (OR 4; 95% CI 0.9 -18.1). Days and doses of sedation did not differ significantly in neonates with or without hypotension, or by WMI status. WMI risk was greater with late (OR 5.9; 95% CI 1.4 -24.2, P 0.014) than early hypotension (OR 3.9; 95% CI 0.96- 15.7).
Hypotension was not an independent predictor of IVH (OR 1 CI 0.4 -2.9), or CH (OR 1.5 CI 0.3-7.7).
Conclusions: Hypotension, even when treated, is an important risk factor for WMI in premature newborns. This risk is modulated by the timing and context of hypotensive episodes. Further study on the effect of management of hypotension on WMI is needed.

ABSTRACT #8 **SPEAKER: Dr. Manish Sadarangani Div Infectious Diseases & Immunology** **Fellow Paper #3**

OUTCOMES OF INVASIVE MENINGOCOCCAL DISEASE IN CANADIAN CHILDREN BETWEEN 2002 AND 2010.

Manish Sadarangani MD, Bettinger Julie MD. Division of Infectious and Immunological Diseases

Background: *Neisseria meningitidis* is a pathogen of global importance, causing 500,000 cases of septicemia and meningitis worldwide annually. There are approximately 200 cases of invasive meningococcal disease (IMD) in Canada each year, and 50% of these occur in children. Adverse outcomes are common, with previous studies describing a case-fatality rate of 10% and up to 20% of survivors suffering from long-term disability, including deafness, epilepsy, amputation and cognitive impairment. In this study we determined risk factors associated with death and the development of significant sequelae, to identify priority areas in clinical management and features to guide prognosis.
Methods: Surveillance of children aged 0-18 years admitted to hospital between January 1, 2002 and December 31, 2010 with IMD was conducted across 8 provinces by the 12 centres of the Canadian Immunization Monitoring Program, Active (IMPACT). The surveillance area included over 50% of the country's population and incorporated approximately 90% of the pediatric tertiary care beds. Cases of IMD were defined by the isolation of *N. meningitidis* from a sterile body site, and these were identified through regular contacts with each hospital's bacteriology laboratory, infection control practitioners and clinical staff. For each case, details of clinical presentation, medical history, laboratory results, treatment and outcome were collected by review of the patient's hospital chart. Risk factors for death and sequelae were analyzed by univariate and multivariable analyses.
Results: A total of 385 children were hospitalized with IMD during the 9-year study period. There were 17 deaths (2%) and 79 (21%) developed significant sequelae. The most common sequelae were deafness (35%), skin scarring (35%), amputation (23%) and epilepsy (16%). At least 77% of sequelae occurred within 2 months of admission. Mortality was independently associated with shock (adjusted odds ratio [OR]=11.3; 95% CI 3.4-37.6), admission to a non-IMPACT hospital (adjusted OR=5.5; 1.8-16.9) and seizures (adjusted OR=4.4; 1.0-18.4), whereas development of sequelae was independently associated with skin necrosis (adjusted OR=36.9; 11.9-114.0), seizures (adjusted OR=5.2; 2.3-11.9), foreign travel (adjusted OR=3.8; 1.1-13.2) and a normal white blood cell count (adjusted OR=2.2; 1.1-4.4).
Conclusions: In this study mortality of children with IMD in Canada was lower than described in other developed countries, although there was a high rate of sequelae. Appropriate early management of shock and seizures, including prompt assessment of the need for an intensive care environment might improve the outcome of this devastating illness in Canadian children.

ABSTRACT #9 **SPEAKER: Dr. Joseph Ting** **Div Neonatology** **Fellow Paper #4**

PHARMACOKINETIC PROPERTIES OF GENTAMICIN IN NEONATES WITH MODERATE-TO-SEVERE HYPOXIC-ISCHEMIC ENCEPHALOPATHY (HIE) WHO UNDERWENT THERAPEUTIC HYPOTHEMIA (TH)

Joseph Ting, Horacio Osiovich. Division of Neonatology

Background: Based on a better understanding of the pathogenesis of tissue damage following perinatal hypoxia-ischemia, modest brain cooling has been applied clinically to attenuate the cascade of events that contributes to brain injury in the past decade. However, knowledge on therapeutic hypothermia's (TH) effects on other physiological functions, more specifically its effects on drug elimination, is limited. Gentamicin has been one of the most commonly prescribed aminoglycosides for the treatment of neonates with suspected or documented sepsis, but potential side effects include nephrotoxicity and ototoxicity.

Objective: Our objective was to investigate alternations in the pharmacokinetic properties of gentamicin in neonates with moderate-to-severe hypoxic-ischemic encephalopathy (HIE) who underwent TH.

Methods: Data were collected retrospectively from infants that were admitted to the Level III Neonatal Intensive Care Unit at Children's and Women's Health Centre in Vancouver, Canada between January 2007 and March 2011. Eligible infants had moderate-to-severe HIE and participated in the Infant Cooling Evaluation (ICE) study or fulfilled the clinical criteria for TH (core temperature maintained at 33-34°C for 72 hours) as standard care after 2008. Infants in the control arm of the ICE study or those not eligible for TH received therapeutic normothermia.

Results: 15 infants were treated with therapeutic normothermia and 20 with TH, respectively. There were no significant differences between groups in terms of demographic characteristics and 48 to 72hrs serum creatinine values [Tables 1 & 2]. The volume of distribution and extrapolated serum gentamicin concentrations at 0.5 hr post-infusion of the first dose were not significantly different between the two groups [Table 2]. However, there were significant differences between the two groups in median half-life (7.01 vs. 9.80 hrs), median plasma gentamicin level at 12-hour post first-dose (1.50 vs. 2.33 μg/mL), extrapolated median peak (7.30 vs. 9.26 μg/mL) and trough plasma gentamicin levels (2.10 vs. 3.98 μg/mL) at steady states [Table 2]. Based on our pharmacokinetic model, an initial dose of 2.5 mg/kg/dose Q18H with monitoring of both peak and trough levels is a reasonable option for babies with HIE who are undergoing TH [Figure].

Conclusions: Infants with moderate-to-severe HIE who underwent TH exhibit changes in their pharmacokinetic properties of gentamicin compared to infants treated with normothermia. A revision of the current recommended dosage of gentamicin should be considered. Caution should be applied with other renal-cleared medications until more information is available for this population when TH is used.

Table 1 Baseline characteristics of the infants

	Normothermia (number=15)	Hypothermia (number=20)
Outborn	11/15	15/20
HIE Stage III at initial assessment	1/15	2/20
Gestational age (weeks)	38.7 ± 2.1	38.9 ± 2.0
Birth weight (grams)	3188 ± 627	3372 ± 544
Apgar Score of <5 at 5-minute	5/15	12/20*
Gender (Male sex)	11/15	12/20
Umbilical blood gas or first available blood gas with pH less than 7	5/15	10/20

* one missing value

Table 2 Pharmacokinetic properties of gentamicin among both groups of infants

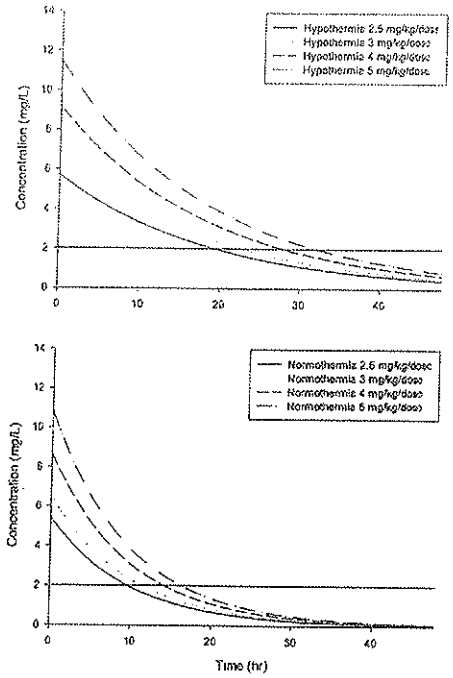
	Normothermia (number=15)	Hypothermia (number=20)	p-value
@Creatinine, μmol/L	73.9 ± 19	74.2 ± 26	0.971
#Half-life, median, hours	7.01	9.80	*0.005*
#Volume of distribution (Vd), median, L/kg	0.45	0.41	0.383
* C_{max} after one dose, median, μg/mL	5.31	6.02	NA
* C_{min} at 12 hours post infusion, median, μg/mL	1.50	2.33	NA
* Extrapolated C_{max} at steady state, median, μg/mL	7.30	9.26	NA
* Extrapolated C_{min} at steady state, median, μg/mL	2.10	3.98	NA
+Need for gentamicin dosage adjustment due to elevated trough level ≥2mg/mL after 1st dose (2.5mg/kg/dose Q12H as baseline)	8/15	18/20	*0.022*

@ Unpaired Student's t-test were used for analysis; expressed as mean ± standard deviations.

*Four babies undergoing hypothermia had missing Vd estimates. + Fisher's exact test was used. # Mann-Whitney U tests were applied.

C_{max}: calculated peak gentamicin level after the initial dose. C_{min}: calculated trough gentamicin level 12-hour at the end of the initial dose. NA: not applicable

Figure: Theoretical plasma concentrations vs. time for different doses of gentamicin under hypothermic and normothermic conditions.



ABSTRACT #10 **SPEAKER: Dr. Mia Pradinuk** **Resident Year 3** **Research in Progress**

EXPLORING HEALTH ADVOCACY THROUGH SOCIAL PEDIATRICS TRAINING

M. Pradinuk, D. Louie, D. Fox, A. Roberts

Health advocacy has been identified as one of the core competencies of residency training within the CanMEDS framework. In the Role of Health Advocate, residents use their expertise and influence to advance the health and well-being of individual patients, communities and populations. However, proficiency in this Role is often difficult to cultivate within the confines of a traditional curriculum. Residents often go through their training without notable exposure to key facets of health advocacy. Social pediatrics seeks to foster access to health care along the continuum from primary care to specialized services for children and their families who are vulnerable as a consequence of their social and material circumstances.

Exposure to this field provides residents the opportunity to develop a greater awareness of the social determinants of health and fosters a strong sense of social accountability and responsibility. Residents are provided with an optimal avenue to advance their skills as Health Advocates. We sought to integrate a social pediatrics experience as a component of a mandatory general pediatrics rotation, providing residents the opportunity to connect with vulnerable pediatric populations in Vancouver's Downtown Eastside neighbourhood. Residents participate in clinics, community-based round-table discussions and school outreach assessments. Through experiential learning, residents are able to reflect on social determinants of health and how they impact our ability to provide care to marginalized communities. It is ultimately through this understanding that the program's goal is achieved: the development of health advocacy skills in future pediatricians that meet the tenets of the CanMEDS framework.