Department of Pediatrics
University of Saskatchewan

Presents

2023 Child Health Research Trainee Day

Thursday April 20, 2023
12:00 pm -3:30 pm

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SASKKIDS PEDIATRICS

JIM PATTISON CHILDREN'S HOSPITAL FOUNDATION

spring
SASKATCHEWAN PEDIATRIC RESEARCH AND INNOVATION GROUP

Child Health Research Trainee Day
Thursday, April 20, 2023
12:00 pm - 3:30 pm

12:00 - 1:00 pm Lunch

12:25 - 12:30 pm Welcome and Opening Remarks **(Dr. Alan Rosenberg)**

12:30 - 1:15 pm **Dr. Patrick Brophy** (Key Note Speaker) *The winding road of research*

1:30 - 2:30 pm Long Presentations

Dr. Patrick Seitzinger (Pediatric Resident)
Dr. Taylor Kobussen (Pediatric Resident)
Yuwen Zheng (PhD Kinesiology)
Dr. Natasha Gattey (Psychiatry Resident)
Prapti Patel (Undergraduate Medicine)

2:30 - 3:00 pm Poster Presentations (Graduates)

Melissa Leonzio (MSc-Kinesiology)
Nahin Shakurun (MSc-Medicine)
Taylor Leonhardt (MSc- Kinesiology)
Craig Eling (PhD-Health Science)
Zahra Ghafouri (PhD - Kinesiology)

2:30 - 3:00 pm Poster Presentations (Medicine)

Dr. Astrid Lang (Resident-Pediatrics)
Dr. Astrid Lang (Resident-Pediatrics)
Dr. Emilee Anderson (Resident-Pediatrics)
Dr. Mark Drew (Resident-Pediatrics)
Ashley Burghall (Undergraduate-Pharmacy and Nutrition)
Mauz Asghar (Undergraduate-Medicine)

3:15 pm Closing Remarks (Dr. Mark Inman & Dr. Alan Rosenberg)

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Dr. Patrick Brophy
Presents
The winding road of research

Dr. Patrick Brophy is the William H. Eilinger Professor and Department Chair of Pediatrics at the University of Rochester Medical Center/Physician-in-Chief Golisano Children's Hospital. He is the past President of the American Society of Pediatric Nephrology (ASPN) and recently came off of the board of directors of the American Board of Pediatrics (ABP). He is also a member of the Association of Medicine School Pediatric Department Chairs (AMSPDC) and serves on the finance committee of the American Board of Medical Specialties (ABMS). He is the immediate past Program Chair for the Pediatric Academic Societies (PAS), a group of academic professional organizations composed of; 1) The American Academy of Pediatrics, 2) The Society for Pediatric Research 3) The American Pediatric Society and 4) The American Pediatric Association. In this role he oversees the annual PAS conference which is one of the largest Pediatric Academic Meetings in the world. Prior to this he was the division Director of Pediatric Nephrology, Dialysis & Transplantation at the University of Iowa. He has held cross appointments in the Department of Surgery and the Interdisciplinary Graduate Program in Informatics. He was awarded a master's in healthcare delivery sciences from the Tuck Business school at Dartmouth in 2013.

He is a clinician and researcher with work focusing on neonatal and congenital genetic renal anomalies, Acute Kidney Injury, and critical care nephrology. His work has resulted in over 150 peer-reviewed publications. He has significantly impacted care management of patients requiring acute dialysis and those with Acute Kidney Injury in addition to some seminal discoveries in the basic science mechanisms of renal development. He has held grants from the NIH, USDA, AAMC and several other foundations. His research has received more than 6,000 citations by researchers all around the globe and has been published in leading journals like the New England Journal of Medicine, Proceedings of the National Academy of Sciences and the Journal of Pediatrics.

Long PRESENTATIONS
1:30 - 2:30 pm

Reducing Excessive Variability in Infant Sepsis Evaluation (REVISE II)

Patrick Seitzinger, Ron Siemens, Aiysha Kurji as part of the REVISE 2 Group Collaborative

The management of fever in infants less than or equal to 60 days old has been a topic of ambiguity for decades with wide practice variation in the management of febrile infants. With the publication of the American Academy of Pediatrics (AAP) clinical practice guideline, we have an opportunity to improve and standardize the care of febrile infants in centre as well as contribute to the standardization of care across North America. Through this study, our study participated in the REVISE 2 multicenter cross-sectional study that included 97 hospitals in the United States and Canada. The purpose of this project is to improve evidence-based evaluation and management of full-term, well-appearing infants 8 to 60 days old with a temperature of ≥38°C and an emergency department visit or hospitalization. This study is both retrospective, looking at cases that fit the criteria from the past 12 months, and prospective, gathering information on how practices may be changing at our centre. The project provided information and medical education to providers through webinars, pathways, a literature bundle, and a toolkit for parent education and engagement. We hypothesize by participating in this study, our institution will increase the proportion of children who receive appropriate CSF testing, appropriate disposition from the emergency department, appropriate antibiotic use, appropriate discharge from the hospital, appropriate outpatient follow-up, and appropriate parent engagement without increasing the proportion of children experiencing ED revisits or rehospitalizations, or who have missed invasive bacterial infections. The anticipated outcomes of the project are to increase the percentage of febrile infants 8-60 days who receive appropriate care to 90% and to increase the percentage of febrile infants age 22-60 days who have documentation of appropriate follow-up and parent engagement to 75%. This study provided actionable quality improvement measures for our institution as well as contributed to the study and standardization of the management of well appearing term febrile infants across North America.

DIFFERENCES IN CLINICAL PRACTICES SURROUNGING THE DIAGNOSIS AND MANAGEMENT OF PEDIATRIC URINARY TRACT INFECTIONS ACROSS CANADIAN EMERGENCY DEPARTMENTS (DIPSTICk)

TAYLOR KOBUSSEN, AHMED MATER

Despite being one of the most common presentations to the emergency room, the diagnosis of pediatric urinary tract infections (UTIs) poses interesting clinical predicaments in the emergency department given children's limited ability to communicate and presentation with nonspecific symptoms. Furthermore, the workup and diagnosis for children presenting with potential UTIs is not always agreed upon both in clinical practice, but also in available literature and in turn clinical decision-making guidelines. There is a consensus that a high colony count urine culture is the gold standard for diagnosis for a UTI. However, a final urine culture result requires an incubation period, often 24 hours or longer, thus limiting its' value in the emergency department.

There are numerous of discrepancies in the available literature regarding the interpretation of more rapid biochemical and urinalysis indicators with regards to UTI diagnosis. Furthermore, significant discrepancies exist between esteemed clinical decision-making guidelines such as Canadian Pediatric Society, Translating Emergency Knowledge for Kids, National Institute for Health and Care Excellence, the American Academy of Pediatrics and others with regards to choosing investigations, investigation interpretation, antimicrobial selection and duration. While some variation in antibiotic choice is expected in keeping with local antibiograms, the array of inconsistencies cannot be explained by this alone. Consequently, given the numerous inconsistencies in the available literature and guidelines, there is no clear clinical pathway.

Furthermore, there is a gap in the extant literature exploring pediatric emergency medicine physicians' actual clinical practices when faced with young children who present to the emergency department with potential UTIs. This study's primary objective is to explore these clinical practices regarding the diagnosis and management of children between 3 and 36 months presenting with potential UTIs to emergency departments across Canada. The secondary objective is to explore the investigative process leading up to the diagnosis of UTIs in this cohort.

Quantitative surveys were distributed to 235 physicians working in pediatric emergency medicine centers across Canada using the Pediatric Emergency Research Canada database and are presently being distributed to emergency medicine physicians across Saskatchewan using local databases.

Exploring these clinical practices may provide some clarity regarding pediatric UTI diagnostic and prescribing practices across Canada and may in turn guide future research efforts and knowledge translation to streamline the approach and management of a children presenting to the emergency room with a potential UTI.

BONE DEFICITS PERTAIN TO THE TRABECULAR BONE ONLY IN CHILDREN WITH TYPE 1 DIABETES: SEX AND MATURITY MATCHED CASE-CONTROL COMPARISON

YUWEN ZHENG, JAMES (J.D.) JOHNSTON, MUNIER NOUR, SAIJA KONTULAINEN

Introduction: Children with type 1 diabetes (T1D) are experiencing a higher risk of fracture, which may be linked to impaired bone development. We aimed to assess differences in imaged bone and muscle characteristics, between children with T1D and typically developing children (TDC).

Methods: We matched 56 children with T1D (mean age 11.9yr, SD 2.1yr) and 56 TDC (11.5yr, 1.9yr) by sex and maturity from 237 participants (6-17yrs, 66 T1D). We imaged the distal radius and tibia with high-resolution peripheral quantitative computed tomography (HR-pQCT) and the radius and tibia shaft bone and muscle with pQCT. Bone macro- and micro-architecture, density, and estimated strength (stiffness and failure load), along with pQCT-imaged muscle properties (area, density) were compared using MANCOVA, after adjusting for covariates that differed (t-test) between the groups (physical activity score was 14% lower and daily dietary Vitamin D intake 45% lower in children with T1D, $p<0.05$).

Results: At the distal radius, children with T1D had 5% lower trabecular number while cortical and tissue mineral density, cortical area, thickness and bone stiffness were 4-24% higher. At the distal tibia, children with T1D had 6% lower trabecular thickness while cortical density was 7% higher at the tibia shaft. Muscle density was 3% higher in children with T1D.

Conclusion: Children with T1D had deficits in trabecular bone micro-architecture at the distal radius and tibia, while the distal radius cortex had higher area, density and thickness. Prospective, longitudinal data characterizing bone development in children with T1D vs. TDC, along with endocrine and lifestyle factors contributing to bone development, are warranted to clarify these seemingly contradictory cross-sectional observations.

Accelerated Resolution Therapy to Treat Children and Adolescents with Psychiatric Symptoms

NATASHA GATTEY, KRISTEN EDWARDS, MARIAM ALAVERDASHVILI, THUY LE, DECLAN QUINN

Sustainable Development Goals: Good health and wellbeing: Ensure healthy lives and promote well-being for all at all ages.

Introduction: Accelerated Resolution Therapy (ART) is a brief form of manualized therapy that can be provided in a short duration (1 hour). There is empirical evidence for its use in the adult population for treating post-traumatic stress disorder, and anecdotal evidence for relieving symptoms of phobias, anxiety, OCD, depression, pain, and substance use disorders. There is limited research on ART in youth. **Methods:** We performed a retrospective medical chart review and analysis on the outpatient child and adolescent psychiatry patients seen at Royal University Hospital from 2017 to 2021 who received ART. Variables obtained include demographics, diagnosis, clinical impression, and data from any psychiatric scales. An equal number of patients who have not received ART but are age- and diagnoses-matched to the treatment population and then randomly selected were compared using the same variables to determine similarities and differences. Descriptive statistics were generated to characterize the study sample. Age groups in the range of 7-18 years old were examined to determine if there are subsets of age that receive ART more often than the other. Data was stratified and explained considering sex, gender, and age. Quantitative data analysis was performed and thematic analysis using exploratory approach was applied to psychiatrists' notes for 95 ART patients.

Results: The mean age of ART patients was 17.73. 3.2% of patients were under age 11 and 8.4% were 12-14 years old. The 15-17 years old group were 30.5%, and the >18 group was 57.9%. Females to males were 85.3% to 14.7%, respectively. ART was effective in 75% of treated patients. The most common reason for providing ART in the female sex was sexual assault (22.2%), and in males was household dysfunction (23.1%). The second highest reason for ART in both male and female groups was anxiety at 21% for female and 15.4% for males. Patients were compared at age of receiving ART and the >15-year-old group was highest at 72.6%. Only 31% of patients completed rating scales prior to ART therapy. Prior therapies to ART were medications (90.8%) psychotherapy (63%) TMS (2.7%) and Ketamine (1.4%). **Conclusion:** We hypothesize the main reason for ineffectiveness of ART was due to poor engagement from the patient. There is a need to create a standardized scale for pre- and post- ART to determine objective improvement. Prospective studies on ART are needed to explore patient outcomes, including medication usage, and diagnosis- and symptom-course following therapy.

Acknowledgements: Special thanks to Candace LaPointe (Mental Health & Addictions Services, Saskatchewan Health Authority) and Adrian Teare (University of Saskatchewan M.D. Candidate, Class of 2024) for assisting with data collection

This research is funded by the Alfred G. Molstad Trust through the Intramural Awards via the Department of Psychiatry

A RETROSPECTIVE REVIEW OF SINGLE VENTRICLE PATHWAY MANAGEMENT IN SASKATCHEWAN

PRAPTI PATEL, TIM BRADLEY

BACKGROUND: Children born with single functional ventricle anomalies of the heart may undergo a series of surgeries, including, but not limited to the Norwood, Glenn and Fontan procedures. The last of these palliative surgeries, the Fontan procedure, bypasses the right heart circulation creating chronically elevated systemic venous pressures and decreased cardiac output, predisposing these children to cardiac and end-organ complications. The aim of this study was to assess if children being followed in Saskatchewan after the Fontan procedure were receiving appropriate outpatient management care and investigations, as recommended by the 2019 American Heart Association Guidelines.

METHODS: We conducted a retrospective chart review of all children being followed in Saskatchewan after the Fontan procedure. We collected data on the patient demographics, primary cardiac and extracardiac diagnoses, dates and types of surgical intervention, dates of clinic visits and investigations, such as ECG, echocardiograms, exercise tolerance tests, Holter monitoring, cardiac MRI, and bloodwork screening for cardiac and end-organ dysfunction.

RESULTS: Of 73 children included (mean age 3.3±0.8 years, 46 males), we noted most were receiving yearly clinic visits (83±9%), ECGs (79±10%), and echocardiograms (82±10%), as recommended by the 2019 Guidelines. Cardiac MRIs (2±4%), exercise tolerance tests (18±17%), Holter monitoring (46±5%) and blood work (61±25%) were all done less frequently than recommended by the 2019 Guidelines. Study limitations included that we were analyzing retrospective data, some of which preceded the publication of the 2019 Guidelines, and that many non-emergent hospital services and investigations were reduced during the COVID-19 pandemic.

CONCLUSIONS: Our current outpatient management practices for children being followed in Saskatchewan after the Fontan procedure do not comply with the 2019 AHA Guidelines. This is primarily due to inadequate staff resources and the lack of a standardized provincial outpatient management pathway to optimize patient care for all children being followed in Saskatchewan after the Fontan procedure.

Poster PRESENTATIONS
2:30 – 3:00 pm
Graduate Category

Body Well-Being and Body Composition in Women Athletes

M. LEONZIO, M.E.K. ADAM, AND M. ERLANDSON

Introduction: Previous sport literature has generally been focused on male athletes. There is a gap in the knowledge regarding women athletes. This is critical as men's and women's sporting experience may be different. The sporting ideology for women's sports is often concerned with the ideal of being thin whereas the ideology behind most male sports is the ideal of being muscular. Women are often reported to be less satisfied with their body shape when compared to men and this is suggested to be related to the societal norms that are placed on women. Therefore, women athletes face the paradox of existing in a traditionally masculine space by the nature of sport and existing in the feminine world and navigating this divide on and off the field. While it has been reported that women athletes experience these pressures little is currently known about how women athletes view their body well-being in comparison to their bodies as a result of sporting culture. It is also unknow if body well-being influences how women athletes perceive their bodies and if this differs between aesthetic and non-aesthetic sporting types.

Methods: This is a cross sectional study examining women athletes ages 14-35 who have at least one year of sporting experience in their current primary sport and are between the recreational and international level. Participants will answer questionnaires assessing demographics self reported body composition, and body well-being (body appreciation, and intuitive eating). Anthropometry (height, and weight), BMI, and DXA scans will also be obtained. In order to explore how women athletes, perceive their bodies, self reported body composition will be compared to objectively researcher measured weight and height to assess if a discrepancy exists. I will also assess if body well-being influences this perception by comparing women athletes who are high and low in body well-being. Lastly, athletes will be split by aesthetic and non-aesthetic sporting type. **Purpose:** The current aim of the current study is to look at women athletes and the relationship between their body well-being compared to body composition and whether there is a discrepancy in this relationship between aesthetic and non- aesthetic sporting classifications. **Hypothesis:** Women athletes who have a lower view of their body well-being will overestimate their objectively measured body composition. There will be greater perceived discrepancy between self-report and measured body composition for aesthetic athletes as compared to non-aesthetic athletes.

Mood Disorder and Obesity in Canadian Children and Young People: Evidence from Canadian Community Health Survey 2017-2018

NAHIN SHAKURUN, SHIRMIN BINTAY KADER, BONNIE JANZEN, PUNAM PAHWA

Background: Mood disorder and obesity are among the leading causes of worldwide disability. However, limited research exists which examines the nature of the relationship between obesity and mood disorder, particularly among children and young people. The purpose of this study, then, was to explore the relationship between mood disorder, obesity, and multimorbidity in a Canadian sample of children and youth.

Method: We used data from respondents aged 12 to 24 (n=15,638) who participated in the 2017-18 Canadian Community Health Survey (CCHS). The dichotomous dependent variable, mood disorder, was assessed using a self-reported question "Do you have a mood disorder such as depression, bipolar disorder, mania or dysthymia?" Obesity was determined from self-reported height and weight measurements and categorized as underweight or normal weight, overweight and obese. The multimorbidity variable was derived from 21 chronic conditions and dichotomized (Less than two chronic conditions and two or more chronic conditions). Covariates were age, sex, ethnicity, province of residence, the highest level of education, household income, and immigration status. A multivariable logistic regression analysis (with robust variance technique) was performed, followed by structural equation modelling with bootstrap variance estimation to test for mediation. The survey weight was applied in all analyses.

Result: Among the study participants, 41% were between 20-24 years, and 22% were between 12-14 years. Both males and females participated almost equally (51.50% vs 48.50%). About 40% of the respondents were from Ontario, and more than half of the respondents (57.15%) had an annual household income of $80,000 or more. The overall prevalence of mood disorder was 7.67%, with higher prevalence associated with female sex, older age, Indigenous identity and being a secondary school graduate without a post-secondary education. In multivariable analysis, mood disorder was significantly higher among obese (AOR= 1.51; 95%CI:1.17-1.95) and among those with multimorbidity (AOR=8.93; 95%CI: 6.30- 12.65). Multimorbidity also emerged as an important mediator in the relationship between obesity and mood disorder.

Conclusion: The findings from this study reveal that obesity linked with multimorbidity is associated with mood disorder. Future research is required to investigate this complex relationship.

The Effect of Consuming Dairy Milk Versus a Pea-Based Protein Beverage on Body Composition and Strength in Adolescent Athletes: A Study Proposal

Taylor Leonhardt , Phil Chilibeck

Introduction: Canada's Food Guide was updated in 2019 to place less emphasis on the role of dairy products and more emphasis on the role of plant-based products in a healthy diet; however, dairy products contain many nutrients which are important for proper physical development, especially in active children and adolescents.

Purpose: The purpose of our study is to compare the effect of consuming 1% chocolate dairy milk to a chocolate pea-based protein beverage and a chocolate almond-based beverage after exercise on muscle tissue, bone mineral density, fat mass, and strength in adolescent athletes. We hypothesize that the 1% chocolate dairy milk group will display greater increases in muscle tissue, bone mineral density, and strength and greater decreases in fat mass. The results of this study will help provide guidance for future revisions of Canada's Food Guide.

Methods: We are recruiting one-hundred and fourteen participants (57 males and 57 females; aged 12-17 years) who are engaged in a regular training program at least three times per week. Participants will be stratified by sex and maturity status before they are assigned to one of three groups: 1) 1% chocolate dairy milk (8g protein per 250 ml); 2) chocolate pea-based beverage (matched for macronutrients to the 1% chocolate milk); and 3) chocolate low-protein almond beverage (1g protein per 250 ml) (matched to the other two groups for calories). Participants will consume 250 ml of their assigned beverage immediately after training and 250 ml one hour after training three times per week for twenty-six weeks.

Discovering the Facilitators and Barriers to Digital Health Literacy in Childhood Rheumatic Diseases.

Craig Eling, Donna Goodridge, Roona Sinha, Alan Rosenberg, Jennifer Stinson, Jasmin Bhawra, Maryam Mehtar, and Shelley Kirchuk

Sustainable Development Goals: 3.8: Achieve universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all.

Introduction

Digital health literacy (DHL) is a set of skills necessary for gaining benefit from a healthcare system that is increasingly focused on digital health. DHL is the ability to seek, access, appraise, utilise, and integrate digital health information. Higher levels of DHL improve the benefit received from digital health, including disease management in patients with chronic childhood diseases and their parents.

Objectives and Research Questions

This project seeks to better understand facilitators of and barriers to DHL in children, youth, and parents affected by childhood rheumatic diseases This study seeks to answer the following questions:

1. What is known about facilitators of and barriers to digital health literacy in children with chronic diseases and their families?
2. What are the perceptions of adolescents with a chronic rheumatic disease and of parents of children with a chronic rheumatic disease regarding DHL facilitators and barriers?
3. What is the level of DHL among parents of children with juvenile idiopathic arthritis (JIA), the most common childhood rheumatic disease, and what is the association between the level of DHL and sociodemographic and disease status, characteristics, and outcomes.

Methods

The three research questions will be answered by the following methods.

Question 1: A scoping review will be conducted, and the findings will be presented around the themes, gaps in the literature, and implications for practice and used in this project to contextualise, inform, and position the findings to existing literature.

Question 2: Individual interviews will be done with 15 adolescents with a rheumatic disease and 15 parents of children with a rheumatic disease in Saskatchewan around their perspectives on facilitators of and barriers to DHL.

Question 3: The Canadian Alliance of Pediatric Rheumatology Investigators (CAPRI) conducts a national JIA Registry. The Registry has >1200 participants and entries from >8,000 clinic visits. The Registry collects some demographic and disease status and characteristics data. This project will add the 8-question eHealth Literacy Scale (eHEALS) to the Registry, which will be completed once by parents when they next access rheumatology care. We expect about 500 individual entries over an 8-month period. Statistical analysis to evaluate DHL associations with patient demographic, postal code (as a crude SES measurement), and clinical characteristics (JIA subtype, Child Health Assessment Questionnaire, Quality of My Life questionnaire, and Clinical Juvenile Arthritis Disease Activity Score scores) will be performed.

Validation of Maturity Prediction for Children and Adolescents with Type 1 Diabetes

ZAHRA GHAFOURI, JAMES (J.D) JOHNSTON, MUNIER NOUR, SAIJA KONTULAINEN

Sustainable Development Goals: **#3**: ensure healthy lives and promote well-being for all at all ages and **SDG #17**: strengthen the means of implementation and revitalize the global partnership for sustainable development.

Background: At the same chronological age, the range in somatic maturity can be large, particularly around the adolescent growth spurt. Thus, validated estimates of somatic maturity are essential in clinical research when assessing skeletal growth and development. Predictive equations, based on predicting years from peak height velocity (i.e., maturity offset) have been validated for typically developing children and adolescents. The predictive accuracy of these equations has not been assessed in children and adolescents with type 1 diabetes (T1D). Validation is needed, as sex-specific impairments in growth velocity during the pubertal growth spurt have been reported in adolescents with T1D, which may affect predictive accuracy.

Objective: To assess agreement and differences between predicted and observed maturity in female and male children and adolescents with T1D.

Methods: We obtained prospective measures of height from health records of participants (12 females and 10 males) in the Bone Strength Development Study in Children with Type 1 Diabetes (BSDS). We applied the Preece-Baines Model and defined age at peak height velocity (APHV) for 22 participants (12 females and 10 males). We calculated observed maturity offset by subtracting age at each measurement from APHV for male ($N_{observations}$ = 109, age 6-18 years) and female ($N_{observations}$ = 144, age 3-17 years) participants. We used Moore et al. maturity prediction equations to predict maturity offset at each measurement time. We used sex-specific linear regression models to report model-fit (R^2) for the agreement and paired *t*-tests to report mean differences (Δ) with 95% confidence intervals, between observed and predicted maturity offsets. Significance was set to $p < 0.05$.

Results: Predicted maturity offsets explained 86% and 87% of the variance in the observed maturity offsets in male and female children with T1D, respectively. Predicted and observed maturity offset means did not differ significantly in male (Δ 0.18, 95% CI -0.02 to 0.38) nor female (Δ 0.09, 95% CI -0.06 to 0.25) participants with T1D.

Conclusion: Maturity prediction equation estimated maturity offsets within 2 months from the observed offset in both female and male children with T1D. These findings warrant cross-validation in a larger sample of children with T1D. Nevertheless, findings suggest that the commonly used Moore et al. equation offers a reliable and practical solution to estimate biological maturity in studies assessing growth and development in children and adolescents with T1D.

Poster PRESENTATIONS
2:30 – 3:00 pm
Medicine Category

Effects of delayed/missed infliximab infusion on children from Saskatchewan with inflammatory bowel disease during the COVID-19 pandemic

Astrid Lang, Simone Nicol

Objectives of Study: Previous research has demonstrated a decrease in adherence to biologic therapies in adult inflammatory bowel disease (IBD) patients comparing 2019

and 2020, with a subsequent need for corticosteroids to induce remission. Data on pediatric patients has been limited. The objectives of this study were:
1. To compare the rate of missed appointments during COVID-19 pandemic (18 March 2020-1 March 2022) to the baseline missed appointment rate.
2. To assess the impact of delayed or missed infliximab infusion appointments on disease activity and biochemical markers of inflammation.
Methods: Data was collected on all Saskatchewan pediatric patients with IBD receiving biologic infusions (n=32). Baseline demographics were collected at time of diagnosis. During the study period, clinical scoring systems (PCDAI, PUCAI), as well as biochemical markers (CRP, ESR, fecal calprotectin, infliximab trough levels) were collected. Changes to treatment plan was also recorded.
Results: Overall, 50% of patients had a missed appointment during the pandemic, compared to baseline of 25% ($p<0.0001$). The mean delay in infusion time was 10 days. There was an increase in PUCAI of 5 points (SD 4.4, $p=0.019$) in patients with a missed infusion. 9.4% of patients (n=3) required corticosteroids as a result of delayed infusion, and 12.5% of patients (n=4) required a change in therapy. Of these, all had delayed an appointment in the preceding 6 months, and 50% had tested positive for COVID19 in that period.
Conclusions: The COVID-19 pandemic and subsequent service slowdowns was associated with a delay in biologic infusion in pediatric patients. The reasons for missed appointments were primarily due to patient viral illness and/or fever. However, COVID19 related travel restrictions accounted for 29.2% of missed infusions. This study demonstrates deleterious effects on disease activity as a result of delayed infusions.

Screening for disordered eating and assessment of body image in adolescents with cystic fibrosis on CFTR-modulator therapy

Astrid Lang, Nita Chauhan

Objectives of Study: Due to multisystem effects on respiratory, gastrointestinal and hepatobiliary systems, there is an early focus on weight gain and caloric intake in children with cystic fibrosis (CF). Adolescents with chronic illness are known to have alterations in body image and are at higher risk of disordered eating, which may evolve into an eating disorder. Previous research has shown that adolescents with CF are at increased risk of eating disorders, with lifetime prevalence up to 16.4% compared to the general population (1.89%). Persons with CF are at particular risk due to this early focus on weight gain and body size from a young age. While frequent contact with medical professionals may be a protective factor in development of an eating disorder, the strong focus on weight gain can also negatively affect body image. The CFTR modulator elexacaftor/tezacaftor/ivacaftor Trikafta) has been available in Saskatchewan for all CF patients over 12 years since October 2021. These medications are shown to improve weight gain and in many cases pancreatic sufficiency is achieved. Other studies have examined disordered eating behaviours and screening tools in this population. To our knowledge, this is the first study to study body image in adolescents using CFTR-modulators.
1. To describe the approach to screening used in the multidisciplinary CF clinic.
2. To describe a case series of patients completing the screener at baseline and at 12 months
Methods: Data will be collected on all Saskatchewan pediatric patients >12 years with cystic fibrosis receiving Trikafta. 15 patients are included. Patients complete 4 brief questionnaires, which have been previously used in the CF population and other children with chronic disease. These are completed at each visit. This case series will examine patterns in body image and disordered eating behaviours over time.
Results: Data collection is currently in progress.
Conclusions: Final conclusions are not yet available. This study will add to the existing literature on body image and eating disorders in the CF population. It will also guide further research in use of ED screening tools in our multidisciplinary clinic.

ASSESSING CAREGIVER KNOWLEDGE OF CPS GUIDELINES FOR THE INTRODUCTION OF ALLERGENIC FOODS

ANDERSON, EMILEE; FONG, ANDREA; NEWAZ, SANJIDA

Over the past decades, many studies have assessed the development of food allergies in relation to timing and technique of food introduction. Following the Learning Early about Peanut Allergy (LEAP) study in 2013, which demonstrated reduced peanut allergy development with early introduction of peanuts, Allergy and Immunology governing bodies amended their guidelines to recommend early introduction of allergenic foods. In 2019, the Canadian Pediatric Society (CPS) released a practice point consistent with the same. Since this time, additional RCTs, meta-analyses, and systematic reviews reinforce that early and repeated introduction of allergenic foods reduces the development of food allergy.
After the change in Canadian guidelines, a survey completed in 2019 by family doctors, pediatricians, and allergists indicated that many family doctors and pediatricians were not familiar with nor providing counselling around the updated guidelines. However, what this study did not assess was whether caregivers were initiating early introduction of solids or had become aware of the guidelines from other sources.
Our study aims to ascertain if Regina-based children who would have started eating solids after the new guidelines came out were introduced to allergenic foods as recommended by the latest guidelines.
Through caregiver completion of a multiple-choice questionnaire, we will gather data to learn if caregivers are aware of the latest guidelines, if they follow the guidelines, and where they learned of the guidelines. This information will allow us to identify if there is a knowledge gap in caregiver awareness of when to introduce allergenic foods. If this is the case, our study will lead to future advocacy projects.
This project is currently in the end stages of ethics approval, and may be in early data collection at the time of presentation. Presentation at the Child Health Research day will outline the purpose and method of our study.

Acute Soft Head Syndrome: Creating a Firm Approach

Dr. Mark Drew, Dr. Roona Sinha, Dr. Derek Fladeland

Sickle cell disease (SCD) is the most common inherited disease worldwide and presents with a myriad of complications. There are many complications of SCD, and a large number are managed using clinical guidelines and strategies for practitioner's use. A rare complication of SCD is acute soft head syndrome (ASHS). This uncommon finding is a cranio-vascular phenomenon with limited knowledge currently available regarding pathophysiology and implications in pediatric patients. Given this absence of understanding around ASHS, as well as a clear path to it's management, we completed a literature review to explore this phenomenon.

We present the case of a 14-year-old male with homozygous sickle cell anemia (HbSS) who presented with vaso-occlusive crisis (VOC) complicated by the peculiar development of a scalp mass. Magnetic resonance imaging (MRI) showed calvarium changes consistent with ASHS. Current literature lacks standardized management for such a complication. Our patient case represents a novel effort to accurately diagnose, effectively manage, and longitudinally observe patient outcomes in ASHS. As such, we outline recommendations for imaging modalities, therapeutic interventions, and ongoing management based on this patient's course over two years.

A literature review was conducted utilizing database searches of MEDLINE, Embase, and Cochrane Central Register of Controlled Trials. Studies were individually reviewed, including those reporting acute swelling and/or bony infarcts in patients 0-18 years. This review was then utilized to inform our final management recommendations.

A SCOPING REVIEW OF PEDIATRIC TRANSPLANT EDUCATION

ASHLEY BURGHALL, MICHELLE RUHL, NICOLA ROSAASEN, BRIANNA GROOT, KAYLA FLOOD, KEEFE DAVIS, NATASHA MINAKASI, JENNY WICHART, HOLLY MANSELL

Background: Education is crucial for pediatric patients and families throughout the transplant continuum, yet data on which interventions are effective and in what circumstances is lacking.

Methods: We undertook a scoping review with the objectives of a) describing the types, effects, and outcomes of patient-focused educational interventions before and after pediatric transplant and b) understanding the educational experiences of patients and caregivers. Five scientific databases were explored for relevant literature using the JBI methodology. Educational interventions published in English, targeting pediatric solid-organ transplant patients (0-25 years) and their caregivers were included. Relevant data from eligible articles (n=27) were extracted and summarized.

Results: Eighteen articles describing seventeen educational interventions were identified for objective A, and nine articles qualitatively assessing patient or parental learning needs were identified for objective B. Most interventions were directed toward teenage patients and their caregivers post-kidney transplant, primarily focusing on medication self-management and adherence, or providing general information on transplant using multi-component delivery formats. Most interventions achieved statistically significant improvements in knowledge (n=8/9) and expressed satisfaction with the intervention (n=7/7) but health-related outcomes such as adherence (n= 2/5) or behaviour (n=2/4) change rarely achieved statistically significant results. In objective B, patients and caregivers described the transplant process as overwhelming, but indicated that social supports and education helped them cope. Participants consistently wanted more information than they received.

Conclusions: Caregivers and pediatric patients value transplant education, but high-quality studies are limited. Since education is a fundamental part of the transplant process future research in this area should be prioritized.

Virtual vs In-clinic Visits in Developmental-Behavioral Pediatrics: Evaluating Patient's Preferences

Mauz Asghar, Susan Petryk, Sanjida Newaz

Background: COVID-19 transformed the delivery of medicine. Canada was forced to find a solution to delivering healthcare to their patients in a manner that would prevent the spread of SARS-CoV-2. Telemedicine was one of the solutions. The rapid need of efficient virtual care accelerated the development of telemedicine globally. Telehealth will be embedded into the health care system for the near future. There is limited research on the factors that affect patients' inclination towards choosing virtual care over in person clinical visits. This study will try to determine the factors that influence choice of care for developmental pediatric patients.

Method: A retrospective cohort study was conducted on over 280 patients and over 1000 appointments were analyzed between the time frame of August 2021 to June 2022. Age, number of medications, experience with virtual appointments, distance from clinic, and whether the appointment was a group appointment were factors taken into account.

Results/Conclusion: General preference for pediatric developmental patients was virtual care. Increase in the distance from the clinic saw an increase in preference for telemedicine. Additionally, previous exposure to virtual care increased the likelihood that a patient would choose virtual care in the future. As developmental pediatric patient age increased, patients' preference transitioned from virtual to in person care. Patients heavily preferred group appointments to be done virtually

Thank you

Our Presenters

Our Judges

The Department of Pediatrics, Research Office

The College of Medicine, University of Saskatchewan

The Jim Pattison Children's Hospital Foundation of Saskatchewan

SPRING (Saskatchewan Pediatric Research and Innovation Group)

For comments, suggestions, or more information on child health research at USask, please contact Tova Dybvig, Pediatric Research Facilitator, tova.dybvig@usask.ca
or Oluwafemi Oluwole, Pediatric Resident Research Coordinator, at oluwafemi.oluwole@usask.ca

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