TRANSITION FROM ACUTE TO CHRONIC PAIN SURGERY IN CHILDREN AND ADULTS: WHAT WE KNOW AND WHERE WE NEED TO GO

Chair: Joel Katz, PhD, York University and Toronto General Hospital (Chair)

Speakers:
- Jennifer Rabbitts, MBChB, University of Washington and Seattle Children’s Hospital
- Jill Chorney, PhD CPsych, IWK and Dalhousie University
- Brittany Rosenbloom, MSc, York University and The Hospital for Sick Children

Symposium Abstract:
Chronic post-surgical pain (CPSP) is a serious adverse effect of surgery defined as pain that persists for at least two months after surgery. The one-year incidence of CPSP in adults varies with procedure and is generally accepted to be moderate-to-severe in 5-10%. Less is known about pediatric CPSP; recent studies indicate it develops in 20-50% of children 12 months after major surgery. CPSP is associated with longer recovery and increased health care costs. For children it is also associated with disruptions in normal childhood development. Although we are far from being able to predict with certainty who will develop CPSP, a biopsychosocial model helps to better understand the circumstances that lead to the development of chronic pain. Intrapersonal (e.g., pre-operative pain, anxiety, and sleep patterns) and interpersonal variables (e.g., parental pain catastrophizing) play strong roles in surgical outcomes. Knowledge of the risk and protective factors that are associated with CPSP will allow for the development of interventions that target modifiable variables. Overall the aims of this symposium are to (1) examine biomedical, psychosocial, and behavioural risk factors for chronic post-surgical pain, (2) present trajectories for pain following surgery, and (3) evaluate evidence-based interventions for the prevention or management of CPSP.

Learning Objectives:
1. To become familiar with common trajectories of postoperative pain
2. To understand the role of sleep, anxiety, and physical activity, in pain and recovery from surgery
3. To describe common psychological predictors of and interventions for chronic post-surgical pain

The longitudinal impact of sleep on pain and health outcomes in children after surgery
Jennifer Rabbitts, MBChB, University of Washington and Seattle Children’s Hospital

Despite dramatic advances in perioperative care and pain management, persistent pain is a frequent consequence after surgery across the lifespan. In adults, emerging literature suggests that sleep disturbance is common after surgery and plays an important role in pain persistence and longer term recovery after surgery. We previously found that sleep disturbance in children having major surgery is a risk factor for acute postsurgical pain, with shorter duration of sleep in the week leading up to surgery predicting higher acute postsurgical pain. However sleep patterns
Psychological predictors of, and interventions for postoperative pain in children and adolescents
Jill Chorney, PhD C Psych, IWK and Dalhousie University

Thousands of children have surgery each year, and for many children this is a stressful and painful experience. Pain is a biopsychosocial phenomenon and psychological factors have been identified as important in the experience of, and adaptation to pain. Previous research has found that psychological variables including preoperative anxiety and pain catastrophizing are related to postoperative pain intensity, but there is limited longitudinal, prospective research in this area. Psychological interventions have also been examined to reduce postoperative pain in youth, but there is currently no available synthesis of this evidence. We will present data from the PORSCHE cohort (Postoperative Recovery following Spinal Correction: Home Experiences), a multi-site, longitudinal study of pain following spinal fusion for adolescent idiopathic scoliosis. Approximately 200, youth aged 10 to 18 completed measures of anxiety and pain catastrophizing at baseline, 1, 3, 6 and 12 months postoperatively, and rated pain at each time point and daily in hospital. Polynomial regressions were fit for each trajectory to classify into common shapes. A significant number of trajectories were best fit by a cubic distribution, suggesting that pain decreased in the short term postoperatively (4 weeks, 3 months), but increased again at 12 months. Multinomial regression was used to explore catastrophizing and anxiety as predictors of trajectories. We will also briefly present results of a systematic review of psychological interventions for postoperative pain. Results indicated that cognitive behavioral strategies (e.g., distraction/imagery) were effective in reducing acute pain compared to standard care. Implications for clinical care will be discussed.

Biopsychosocial predictors of chronic post-surgical pain in adults
Brittany Rosenbloom, MSc, York University and The Hospital for Sick Children

Chronic post-surgical pain (CPSP) is a common adverse event following surgery in adults. Research suggests that there are biological, social, and psychological risk factors that predict the transition from acute to chronic postsurgical pain and these are similar for trauma populations. Ms. Rosenbloom will review the current literature on risk and protective factors for CPSP and
will highlight the results from a recent prospective, longitudinal study that followed 205 patients who sustained traumatic injury (TMsI) and surgical intervention (67.80% male, mean age = 43.02 years, SD=19.90, mean Injury Severity Score of 16.67, SD=8.97). In this study, thirty percent of patients who sustained a TMsI went on to develop moderate-to-severe neuropathic pain 4-months after injury. Multinomial logistic regressions were used to examine the role that various biopsychosocial factors play in predicting who will go on to develop CPSP. Significant predictors of the development and maintenance of moderate-to-severe neuropathic pain included high levels of general anxiety while in-hospital following injury and symptoms of posttraumatic stress 4-months after injury. The results provide supporting evidence for the factors that predict who will have CPSP following injury and surgery, however, further research is needed to determine the best treatment approaches for complex post-surgical patients.