

Pain Detectives: Optimizing the management of pain and irritability in children with severe neurological impairment

Ketchum K (1, 11), Hermansen AM (1), Andrews G (1), Pawliuk C (1), Dewan T (9), Gnanakumar V (10), Orkin J (4,5), Richardson A (1), Vadeboncoeur C (6,7,8), Holsti L (1,3), Carleton B (1,2), Oberlander T (1,2), Siden H (1,2)

Abstract

Our goal at the Siden Lab is to improve the assessment and treatment of pain and irritability in children with complex health conditions and multiple disabilities who have limited communication and cognition. The origins of this discomfort are complex and poorly understood, so we use the term Pain and Irritability of Unknown Origin (PIUO) to describe them. We believe that lack of a standardized approach to investigating PIUO may be contributing to pain persistence in the kids we see. To address this, our team developed a systematic approach to investigating PIUO, which we call the PIUO Pathway. The goal of the PIUO Pathway is to efficiently identify treatable causes of pain and irritability.

We are currently testing the efficacy of the PIUO Pathway. Participants are children who have a severe neurological impairment (SNI), extremely limited communication and mobility function, and are experiencing PIUO. We start by asking questions about the child's health status, previous investigations and treatments. We also ask about the impact of the child's PIUO on the family's quality of life. Children are randomly assigned to the Pathway or Waitlist arms of the trial, and we work with the families to identify or exclude any sources of pain and irritability through structured history taking, physical examination, laboratory investigations and pharmacological interventions.

We cannot always identify the source of pain using the PIUO Pathway. Moreover, in children with complex neurological conditions, pain and irritability are not always due to disease or injury, but instead may be due to generalized irritability of the central nervous system. Kids that are still experiencing PIUO after going through the Pathway are eligible to participate in our drug trial, which investigates the efficacy of gabapentin in relieving PIUO. Gabapentin was originally used as an anti-seizure medication, but has since become more known as an effective treatment for chronic, complex pain. We hope that gabapentin can be proven to be beneficial in relieving these kids' pain, the nature of which we still do not fully understand.

Institution

1 British Columbia Children's Hospital Research Institute, Vancouver, Canada; 2 Department of Pediatrics, University of British Columbia, Vancouver, Canada; 3 Department of Occupational Science and Occupational Therapy, University of British Columbia, Vancouver, Canada; 4 Department of Pediatrics, University of Toronto, Toronto, Canada; 5 Complex Care, Hospital for Sick Children, Toronto, Canada; 6 Department of Pediatrics, University of Ottawa, Ottawa, Canada; 7 Children's Hospital of Eastern Ontario, Ottawa, Canada; 8 Roger Neilson House, Ottawa, Canada; 9 Department of Pediatrics, University of Calgary, Calgary, Canada; 10 Physical Medicine and Rehabilitation, Alberta Children's Hospital, Calgary, Canada; 11 Medical student, University College Dublin, Dublin, Ireland