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Implementing an Interdisciplinary Enhanced Recovery Pathway for Adolescents with Idiopathic Scoliosis undergoing Posterior Spinal Fusion using patient portal based Telemonitoring for Short- and Long-term Follow Up

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Abstract

Statement of the Problem: The large surgical incision and severe tissue trauma in posterior spinal fusion (PSF) for adolescent idiopathic scoliosis (AIS) causes severe acute postoperative pain. Furthermore, PSF is associated with a risk of persistent postsurgical pain (PPSP). Six months after PSF, the incidence of PPSP is as high as 22% of the patients. Optimizing pain management therefore remains crucial, but challenging. The purpose of this study is to design and implement an enhanced recovery pathway (ERP) with all aspects of biopsychosocial care integrated for adolescents with AIS undergoing PSF. Additionally, postoperative pain and PPSP is evaluated up to 12 weeks post PSF. Methodology & Theoretical Orientation: In December 2019, a prospective cohort study was set up in which an ERP substitutes more than the patient-controlled intravenous analgesia (PCIA) containing morphine postoperatively. This ERP consists of m/eHealth based psychological screening questionnaires, patient education, early mobilization, and a multimodal analgesia protocol consisting of preemptive gabapentin, an intraoperatively given single dose of methadone (0.2 mg/kg), non-steroidal anti-inflammatory drugs, and acetaminophen. Sublingual buprenorphine is used as a rescue analgetic. Findings: A total of 23 ERP vs standard of care patients, with an average age of 14.5 years [11-18], were included in the control group. An average of 10 vertebrae [6-13] were fused. Most of the patients were nauseous during their hospital stay (n=16, 70%). Numeric rating scale painscores from postoperative days 1 to 5 are 3.65, 3.51, 3.57, 3.03, and 2.82, respectively. Patients stayed in the hospital for an average of 7.48 days [5-12]. ERP results are expected in 2021. Conclusion & Significance: Using an ERP for patients undergoing PSF could not only reduce the acute and chronic opioid consumption and its side effects, but could also result in less postoperative pain, shorter hospital stay and higher patient satisfaction.

Image

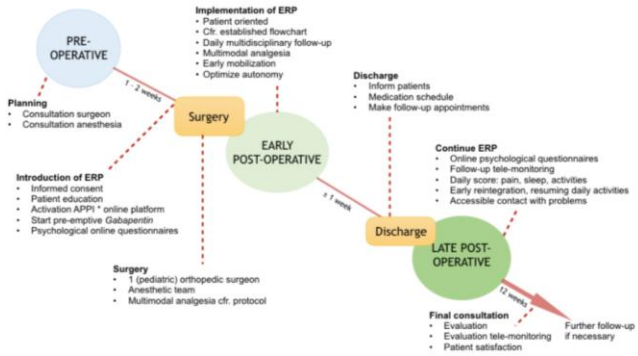


Figure 1: Study-protocol design

Recent Publications

1. Liossi C, Johnstone L, Lilley S, Caes L, Williams G, Schoth DE. Effectiveness of interdisciplinary interventions in paediatric chronic pain management: a systematic review and subset meta-analysis. Br J Anaesth. 2019;123(2):e359–71.
2. Ocay DD, Li MMJ, Ingelmo P, Ouellet JA, Pagé MG, Ferland CE. Predicting acute postoperative pain trajectories and long-term outcomes of adolescents after spinal fusion surgery. Pain Res Manag. 2020;2020:9874739.
3. Rosenbloom BN, Pagé MG, Isaac L, Campbell F, Stinson JN, Wright JG, et al. Pediatric chronic postsurgical pain and functional disability: A prospective study of risk factors up to one year after major surgery. J Pain Res. 2019;12:3079–98.
4. Peng C, Li C, Qu J, Wu D. Gabapentin can decrease acute pain and morphine consumption in spinal surgery patients: A meta-analysis of randomized controlled trials. Medicine (Baltimore). 2017;96(15):e6463.
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Biography

Dr. Van Hoorick is a resident in Anaesthesiology at the Antwerp University Hospital. She received het Master in Medicine at the University of Antwerp. Her current research interests includes pain management and multimodal analgesia.

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