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Serratus Plane Catheter for pain relief in Anterior Spinal Surgery for Idiopathic Scoliosis

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Introduction: Patients having Anterior Thoracic or Thoracolumbar Scoliosis Surgery may have severe pain postoperatively and require specialized analgesia both intra and post-operatively. Intravenous opioid-sparing techniques such as intrathecal diamorphine are inconsistent in their results. Morphine and other opioid-based drugs have the disadvantage of nausea, vomiting, constipation, dysphoria, and immunosuppression.

There is a paucity of data on epidural catheters for muscular blocks in the literature and none for anterior surgery. Various analgesic regimens are used by different anesthetists including drugs such as morphine, ketamine, gabapentin, paracetamol, and non-steroidal anti-inflammatories. The authors believe this is the first study of Serratus Anterior Blockade with Epidural Catheter (SABER).

Method: This is a retrospective review of all anterior spinal surgery for Adolescent Idiopathic Scoliosis performed at St Georges' Hospital NHS Trust from January 2017 to December 2018. An epidural catheter placed in the serratus anterior muscular plane with an infusion of 0.125% Chirocane in addition to other analgesia was analyzed.

The analysis included: Demographics, dose and length of anaesthesia (epidural, intravenous, Patient-controlled anaesthesia (PCA), oral) peri and postoperatively, transition to oral medication analysis, pain scores at the different time points, and associated factors or complications.

Result: Over this period, there were a total of 44 patients who underwent anterior spinal surgery, of which 26 patients had thoracic scoliosis surgery, 17 patients had thoracolumbar scoliosis surgery, and 1 patient had both. The mean age was 16.4 (11-30 years old), 70% were female, with 100% receiving SABER. There were no early failures of catheter or catheter site infections. Pain scores reported by the patients steadily reduce from 12 hours to 48 hours post-operatively. Pain scores between Thoracic versus Thoracolumbar scoliosis surgery was not significantly different ($p > 0.05$). A significant decrease in Intravenous Morphine in both groups occurred on a day 1. PCA was discontinued at a mean of 24 hours (20-34 hours). Transition to oral morphine started by mean of day 2.4 (day 2-day 3). A chest drain was removed at mean day 2.4 (day 2-day 4). The average hospital length of stay was 6.1 days.

Conclusion: SABER is a novel technique for pain management with the avoidance of intravenous morphine and its well-recognized complications. There is no significant difference regarding the number of levels instrumented or the magnitude of correction or anatomical location (thoracic vs thoracolumbar) or presence of cystoplasty. There is a reduction in PCA in all groups by 12 hours with an average transition to oral morphine use by day 2. The use of local anesthetic infusions in patients having anterior spinal surgery is a safe and effective method of pain relief. Further studies should be conducted to compare its efficacy.

Biography

Emily Tsang is a fifth-year medical student from St. George's, University of London. She has been working with the spinal team at St. George's University Hospital for several years on different projects.

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