Comparing the Effect of Combined Spinal - Epidural Anaesthesia versus General Anaesthesia on the Recovery Time of Gastrointestinal Function in Infants Undergoing Gastrointestinal Surgery: A Randomised, Controlled Trial.

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Introduction: In neonates, post operative ileus (POI), may result in abdominal distension, which can contribute to significant post-operative morbidity due to delayed enteral nutrition, patient discomfort, the need for assisted ventilation, and prolonged hospitalisation. [1] Most general anaesthesia (GA) agents further contribute to morbidity after intestinal surgery by reducing gut motility. Recently, two studies showed that combined spinal-epidural anesthesia (CSEA) could be used in paediatric population as an effective anaesthetic technique in small infants who need elective gastrointestinal surgery [2, 3].
We conducted a randomised controlled trial to assess the rate of restoration of gastrointestinal function following combined spinal - epidural anaesthesia technique compared to general anaesthesia technique in small infants undergoing elective gastrointestinal surgery.

Methods: Ethical approval for this study was provided by the local Ethical Committee and informed parental consent was obtained for each infant. Fifty infants who required gastrointestinal elective surgery for congenital anomalies were divided randomly to receive either CSEA or GA.
The primary outcome, namely restoration of bowel function, was determined by recording the time of the first post-operative stool, the duration of nasogastric feeding, and the onset time of full enteral nutrition. Since the process of post-operative bowel recovery typically lasts between three to five days, the times of the first post-operative stool were divided into early (less than five days) and late (more than five days).
The secondary outcomes (frequency of post-operative adverse events such as vomiting, diarrhoea, significant abdominal distension, local wound infection, urinary tract infection, and pneumonia) were recorded for each infant in the two study groups

Results: We found that (a) the recovery of intestinal function was faster ($p<0.0001$) (b) the frequencies of post-operative abdominal distension and pneumonia were smaller ($p<0.04$), and (c) the need for post-operative intravenous fentanyl was less (404 ± 350 µg versus 55 ± 67 µg; $p< 0.0001$) in infants who were anaesthetised by CSEA compared to GA.

Conclusions: Precautions must be instituted to prevent airway compromise and regurgitation when using CSEA in a child with partial obstruction of the GI tract. CSEA leads to faster restoration of gastrointestinal function whilst reducing adverse events in infants who require gastrointestinal surgery.

References

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