

EFFECTS OF INTRATHECAL FENTANYL ON QUALITY OF SPINAL ANESTHESIA IN CHILDREN UNDERGOING INGUINAL HERNIA REPAIR.

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Background and aim

The addition of intrathecal (IT) fentanyl to spinal anesthesia improves intraoperative anesthesia quality in adults undergoing inguinal hernia repair (1). However, the effect of IT fentanyl on the characteristics of spinal anesthesia has not been investigated in children. The aim of this study was to evaluate whether the incidence and severity of pain during peritoneal suchandling is decreased by addition of fentanyl to bupivacaine when compared with plain bupivacaine in children undergoing inguinal hernia repair with spinal anesthesia.

Material and methods

This randomized, double blind, placebo controlled study was approved by the ethics committee and informed consent was obtained from parents. Children were allocated into two groups as follows: Group F (n=24): hyperbaric bupivacaine plus 0.2 $\mu\text{g}\cdot\text{kg}^{-1}$ of fentanyl. Group P (n=24): hyperbaric bupivacaine plus 0.9% NaCl (placebo). The dose of bupivacaine was 0.4 $\text{mg}\cdot\text{kg}^{-1}$ (maximal 10 mg). Spinal block was performed in the sitting position. Spinal block characteristics, hemodynamic and respiratory data were recorded. The primary outcome was incidence and severity of pain during peritoneal sac handling. Perioperative side effects were also recorded.

Data were presented as mean (SD) or median (range). Student t test or Mann-Whitney U tests were used as appropriate. Categorical variables were analyzed using Chi-square test to determine the differences among the groups. The Fisher's exact test was used as appropriate. $P < 0.05$ was considered significant.

Results and discussion

Forty patients completed the trial: 19 in group F and 21 in group P. The two groups were similar in age, weight, height and sex distribution. There were significant differences in incidence of pain and pain scores during the sac traction with lower incidence and scores in the fentanyl group ($p=0.027$ and $p=0.006$ respectively). There was no significant difference between the two groups in the level of sensory block during the sac traction. ($p>0.05$). The groups were similar in hemodynamic properties and perioperative side effects.

This study shows that adding 0.2 $\mu\text{g}\cdot\text{kg}^{-1}$ of fentanyl to 0.4 $\text{mg}\cdot\text{kg}^{-1}$ of bupivacaine improves the quality of intraoperative analgesia by decreasing the incidence and severity of peritoneal traction pain, compared with placebo in children undergoing inguinal hernia repair with spinal anaesthesia.

References: 1. Seewal R, Shende D, Kashyap L, et al. Reg Anesth Pain Med. 2007 Jan-Feb;32(1): 20-26.