ANESTHESIA FOR HYPERTROPHIC PYLORIC STENOSIS: A FIVE-YEAR REVIEW

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INTRODUCTION

The management of idiopathic hypertrophic pyloric stenosis (IHPS) has evolved with the introduction of various surgical approaches such as laparoscopy and the circumbilical incision, the increased use of ultrasonography as a diagnostic tool and the introduction of new anesthetic agents. The principal aim of this study was to assess the effect of anesthetic technique and new diagnostic and surgical approaches on outcome of infants undergoing pyloromyotomy.

METHODS

After obtaining IRB approval, a retrospective cohort study was undertaken using anesthetic records and medical charts of all infants with IHPS who underwent pyloromyotomy between January 1999 and December 2003. Demographic data, perioperative anesthetic and surgical management and outcome measures such as duration of procedure and length of hospital stay (LOS) were assessed. Statistical analysis was performed using ANOVA and T tests.

RESULTS

During the study period, 106 patients underwent pyloromyotomy. The mean age was 5.3 ± 2.1 weeks with a male:female ratio of 6.5:1. At admission, mean pH and K⁺ levels were 7.45 ± 0.08 and 4.9 ± 0.9 respectively. Induction of anesthesia was done intravenously in all patients. The time to discharge ($T_{D/C}$) from the operating room was shorter with the use of succinylcholine ($n=90$) compared to non-depolarizing muscle relaxants (14.7 ± 8.2 vs. 18.4 ± 11.9 min, $p=0.02$); and longer when Halothane (24.8 ± 11.1 min) was used for maintenance compared to isoflurane (14.2 ± 7.8), sevoflurane (18.5 ± 11.7), and remifentanyl + propofol (12.5 ± 10.6) ($p<0.01$). Sufentanyl had longer $T_{D/C}$ than fentanyl or remifentanyl (27.5 ± 15 vs. 17.3 ± 10 and 8.3 ± 2.8 min, $p<0.03$). The time to first postoperative analgesic dose was longer when rectal acetaminophen was given intraoperatively ($n=67$): 6.1 ± 2.1 vs. 4.9 ± 2.5 hrs ($p=0.02$). No postoperative apnea was recorded. Complications occurred in 32 patients and were more frequent in ASA III patients (28.6 %, $p=0.02$) and in infants diagnosed on the basis of clinical findings (60%, $p=0.01$).

DISCUSSION

Contrary to a previous review, classic hypokalemic, hypochloremic, metabolic alkalosis was not seen in the majority of infants presenting with IHPS, presumably due to earlier ultrasonographic diagnosis¹. The use of succinylcholine and isoflurane or sevoflurane or remifentanyl + propofol allowed earlier discharge of infants. Rectal acetaminophen contributed significantly to pain control.

REFERENCES

1. Can J Anesth 1991;38:668-676