Introduction: Hypertrophic pyloric stenosis is the most common condition requiring surgery during the first few months of life. Infants with hypertrophic pyloric stenosis have a functional gastric outlet obstruction that may place them at a greater risk for aspiration of gastric contents during induction of anesthesia. The aim of this study is to review the perioperative care of patients undergoing surgery for pyloric stenosis.

Methods: This research project was approved by the Institutional Review Board for medical research. We reviewed the charts of infants who were diagnosed with hypertrophic pyloric stenosis and who underwent pyloromyotomy. We reviewed patient demographic information, preanesthesia evaluation, anesthesia techniques, postoperative care and hospital course.

Results: We reviewed the medical records of 184 patients, 153 males and 31 females, weighing 4.1 ±0.8 kg, who had undergone surgery for correction of pyloric stenosis. Thirty-one patients had history of prematurity and 33 patients were first born males. With the measurement of the initial potassium at hospitalization, 7% had hypokalemia (less than 3.5 mEq/ml) and 24% had hyperkalemia (greater than 5.5 mEq/L). The abnormal electrolytes were corrected prior to the surgery. Most of the patients received rapid sequence induction general endotracheal anesthesia with cricoid pressure, except one patient who was intubated prior to the surgery. Five patients received awake intubation. One hundred and fifty-one patients (82%) received intravenous atropine prior to the induction of anesthesia. One hundred and sixty-six patients (90%) received succinylcholine as the muscle relaxant. Either 3.0 or 3.5 size endotracheal tube was used for anesthesia. Cuff endotracheal tube was used for one patient. The majority of postoperative pain control was achieved by local anesthetic infiltration over the site of surgery and acetaminophen. Three cases received intraoperative opioids. One case received caudal for postoperative pain control. There was no cases of postoperative apnea or anesthesia related perioperative complication.

Discussion: Infants with hypertrophic pyloric stenosis have severe metabolic derangement due to protracted vomiting, and carry a potential risk of aspiration pneumonitis from the gastric outlet obstruction. The primary therapy for hypertrophic pyloric stenosis is surgical management, but it is essential to understand that pyloric stenosis is a medical and not a surgical emergency. Preoperative preparation is the most important factor contributing to low perioperative complication rates. For routine anesthetic management of otherwise healthy infants with pyloric stenosis, awake tracheal intubation was not preferred. Our report indicates that general endotracheal anesthesia with rapid sequence induction is the most frequently used anesthetic technique for pyloromyotomy. In the reported potassium levels in infants with pyloric stenosis, 36% of the patients had increased serum potassium levels (greater than 5.3 mEq/L). In our study patients, 24% had initial hyperkalemia (greater than 5.5 mEq/L). All the electrolyte abnormalities were corrected prior to the surgery. Infiltration of local anesthetics to the site of surgery and acetaminophen are commonly utilized postoperative analgesia methods. Thorough preoperative evaluation, optimization of their preoperative status, appropriate anesthetic induction and maintenance, and adequate postoperative care are crucial for delivering anesthesia care for infants with hypertrophic pyloric stenosis.

References: