

PER- AND POSTOPERATIVE RESPIRATORY PROBLEMS IN INFANTILE HYPERTROPHIC PYLORIC STENOSIS

Fenne A.I.M. van den Bunder¹, Markus F. Stevens², Job B.M. van Woensel³, Tim van de Brug⁴, L.W. Ernest van Heurn¹, Joep P.M. Derikx¹

¹ Department of Paediatric surgery, Emma Children's Hospital, Amsterdam UMC, University of Amsterdam and Vrije Universiteit Amsterdam, The Netherlands.

² Department of Anaesthesiology, Amsterdam UMC, University of Amsterdam, The Netherlands.

³ Paediatric Intensive Care Unit, Emma Children's Hospital, Amsterdam UMC, University of Amsterdam, The Netherlands.

⁴ Department of Epidemiology and Biostatistics, Amsterdam UMC, The Netherlands.

Aim

Studying the incidence of peroperative hypoxemia and postoperative respiratory events in infants undergoing pyloromyotomy and the potential role of metabolic alkalosis.

Methods

- Retrospective review of infants undergoing pyloromyotomy between 2007-2017.
- Assessment of hypoxemia ($SpO_2 \leq 90\%$ for $>1\text{min}$), difficult intubations and postoperative respiratory events.
- Multivariate logistic regression analysis of serum pH, bicarbonate or chloride with respiratory problems

Results

- N=406 (85% male; median age 34 days)
- 51% developed ≥ 1 episode of perioperative hypoxemia and 95 postoperative respiratory events occurred.
- 7.5% of the infants had a difficult intubation.
- No clinically relevant correlation between laboratory values of pH, bicarbonate or chloride and per-/ postoperative respiratory problems.

Discussion

- We advise that all infants with IHPS should be operated and anesthetized in a hospital with significant experience for this patient group.
- Preoperative pH, bicarbonate and chloride are bad indicators for perioperative hypoxemic episodes.

Table 1. Incidence of perioperative hypoxemia split by severity and duration

	$SpO_2 \leq 90\%$ ($>1\text{ min}$)	$SpO_2 \leq 80\%$ ($>1\text{ min}$)	$SpO_2 \leq 90\%$ ($>5\text{ min}$)
Induction	130 (32.0%)	68 (16.7%)	12 (3.0%)
Intraoperative	43 (10.6%)	14 (3.4%)	7 (1.7%)
Emergence	112 (27.6%)	33 (8.1%)	10 (2.5%)

Legend Values are number (percentage)

51% developed ≥ 1 episode of perioperative hypoxemia

Infants with IHPS are at risk to develop hypoxemia and/or respiratory events



Table 2. Incidence of postoperative respiratory events

	n = 406
Hypopnea (respiratory rate $<20/\text{min}$)	24 (5.9%)
Apnoea	12 (3.0%)
Desaturation ($SpO_2 \leq 80\%$ for $>1\text{ minute}$ or $SpO_2 \leq 90\%$ for $>2\text{ minutes}$)	51 (12.6%)
Stridor	5 (1.2%)
Respiratory insufficiency or reduced breathing drive	3 (0.7%)
Unspecified incident	3 (0.7%)

Legend Values are number (percentage). *Some infants scored on more items.