Retrospective Cohort Study on the Optimal Timing of OGT/NGT Insertion in Infants with Pyloric Stenosis

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INTRODUCTION

Infantile hypertrophic pyloric stenosis can lead to partial or complete gastric obstruction and significant buildup of gastric contents, necessitating orogastric tube (OGT) or nasogastric tube (NGT) placement. More recently, an increasing number of infants are presenting to the operating room without an OGT/NGT in place. Continuous gastric suctioning can worsen existing alkalemia, delay normalization of electrolytes and surgery, and increase time to full feeds and delayed discharge. In this study, we examined whether having an OGT/NGT placed at time of admission increased time to readiness for surgery in infants presenting with hypertrophic pyloric stenosis. Secondarily, we examined whether having an OGT/NGT placed at time of admission was associated with oral intake intolerance 6 hours post-procedure, increased time from surgery to discharge or increased length of stay

METHODS

- Four-center retrospective cohort study
- 481 patients who underwent corrective surgery for pyloric stenosis from March 2013 to June 2016.
- Site-adjusted Cox proportional hazard models were constructed to evaluate whether OGT/NGT placement at time of (or soon after) admission was associated with increased time to readiness for surgery or increased time from surgery to discharge.
- Bivariate and multivariate logistic regression was utilized to evaluate the association between OGT/NGT placement and the ability to tolerate oral intake at 6 hours post-surgery.
- A sample size of 145 patients in each arm was required to achieve 80% power to find an 8-hour difference in length of stay with an alpha level of 0.05.

DEMOGRAPHICS

Table 1. Baseline Characteristics by Treatment Group

	NGT (n=142)	No NGT (n=339)
Males, n (%)	122 (85.9)	284 (83.8)
Ready for OR at time of admission, n (%)	85 (60.0)	249 (74.0)
Age on admission in days, median (IQR)	32 (25,42)	32 (26,44)
Post-conceptual age on admission in weeks, mean (SD)	43.4 (2.4)	43.4 (2.6)
Weight on admission in kg, mean (SD)	3.89 (0.7)	3.96 (0.7)
Number of days of symptoms, median (IQR)	6 (3,11)	5 (3,8)
Number of lab draws needed prior to normalization, mean (SD)	1.8 (1.5)	1.4 (0.9)
Baseline laboratory values, in mEq/L		
Serum sodium, mean (SD)	137.4 (2.9)	138.7 (2.7)
Serum potassium, mean (SD)	4.6 (0.9)	4.6 (0.8)
Serum chloride, mean (SD)	97.4 (13.5)	99.7 (7.1)
Serum bicarbonate, mean (SD)	28.7 (5.3)	26.7 (5.0)

RESULTS

Odds ratio of the inability to tolerate PO intake within 6 hours after NG/OGT placement prior to surgery

		Odds Ratio	Lower Limit 95% CI	Upper Limit 95% CI	p-value
adjusted for site	Entire cohort	3.26	1.29	8.16	0.012
	Not Ready*	6.16	1.55	25.00	0.009
	Ready**	1.82	0.53	6.48	0.347

*Defined as the subgroup that was not ready for surgery at the time of admission due to electrolyte abnormalities.
**Defined as the subgroup that was ready for surgery at the time of admission based on normal serum electrolyte levels.

CONCLUSION

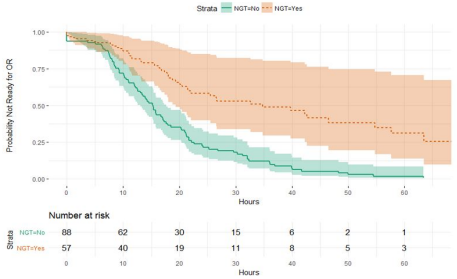
Placement of an OGT/NGT prior to surgery appears to be associated with clinically significant increased time to readiness for surgery in the subgroup that was not ready at time of admission, after adjusting for site differences.

There was also a statistically significant increased time to discharge after surgery and increased total length of stay associated with NGT/OGT placement in ED or prior to presentation to OR.

Additionally, there was also an increased likelihood of oral intake intolerance within 6 hours after surgery.

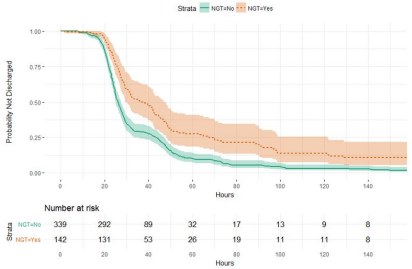
RESULTS

Cox model time to readiness to OR among patients not ready at time of admission.



RESULTS

Cox model time from surgery to discharge.



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