

# Hypertrophic Pyloric Stenosis / Pyloromyotomy Care Guideline

## Inclusion Criteria:

Children < 3 months of age with signs, symptoms or exam findings suggesting a diagnosis of hypertrophic pyloric stenosis (HPS)

## Exclusion criteria:

Suspected sepsis, bilious vomiting suggesting intestinal obstruction, presence of significant comorbidities or chronic conditions which would alter the approach to care

## Information/Recommendations/Considerations

- HPS is one of the most common gastrointestinal disorders during early infancy, with an incidence of 1-2:1000 live births; most common between the ages of 2 and 8 weeks of life
- Hypertrophy of the circular muscle of the pylorus results in constriction and obstruction of the gastric outlet.
- Gastric outlet obstruction leads to non-bilious, projectile emesis, loss of hydrochloric acid with the development of hypochloremic & hypokalemic metabolic alkalosis, and dehydration.
- Surgical myotomy is the primary approach to the management of hypertrophic pyloric stenosis (HPS)
- Preoperative intervention may include NG tube to low intermittent suction, if persistent vomiting before electrolytes are corrected.
- Morphine may be given postoperatively for severe pain not relieved by acetaminophen (use judiciously). The use of opioids may potentiate the risk of respiratory depression in infants undergoing pyloromyotomy
- Patients w/ persistent post-op vomiting will be managed on an individualized basis.

## Preoperative History, Diagnosis, and Interventions

- Projectile and/or frequent episodes of non-bilious emesis with or without associated weight loss.
- Increasing frequency and volume of vomiting, despite trials of small frequent feedings of formula or breastmilk.
- Obtain abdominal ultrasound and Panel 9.
- Normal saline bolus 20mL/kg as needed.
- D5¼ NS with 10 mEq/L KCL maintenance rate.
- Correct electrolytes, if abnormal, before surgery. Targets: potassium  $\geq 3.0$ , chloride  $\geq 100$ , bicarbonate  $\leq 30$ .
- If electrolytes abnormal, D5½ NS with 20 mEq/L KCL maintenance rate, consider 1½ x maintenance rate.
- Cefazolin 25 mg/kg x 1 within 60 min prior to incision (if prophylactic antibiotic administered).
- Recheck Panel 9 preoperatively q. 12 hours if initially abnormal & until electrolytes normalized.

## Postoperative Assessment

- Vital signs q 1 hr x 2, then q 4 hrs
- Strict I/O
- Apnea monitor
- Pain Assessment and Management (Refer to Patient Care Policy F918)

## Postoperative Interventions

- Activity as tolerated
- NPO x 4hrs postop, then begin feeding ad lib
- Acetaminophen 15mg/kg rectal q 4h PRN

## Discharge Criteria

- VS stable, afebrile x 24 hrs
- Tolerating ad lib diet x 2-3 feedings
- Abdomen soft, non-distended, without significant tenderness
- Comfortable on PO pain meds

## Patient/Family Education

- Pyloric Stenosis Handout located on PAWS in Patient and Family Education

## References

### *Hypertrophic Pyloric Stenosis/Pyloromyotomy Care Guideline*

- Adibe, O. O., Nichol, P. F., Lim, F. Y., & Mattei, P. (2007). Ad libitum feeds after laparoscopic pyloromyotomy: a retrospective comparison with a standardized feeding regimen in 227 infants. *Journal of Laparoendoscopic & Advanced Surgical Techniques*, *17*(2), 235-237. doi:10.1089/lap.2006.0143
- Askew, N. (2010). An overview of infantile hypertrophic pyloric stenosis. *Paediatric Nursing*, *22*(8), 27-30.
- Aspelund, G., & Langer, J. C. (2007). Current management of hypertrophic pyloric stenosis. *Seminars in Pediatric Surgery*, *16*(1), 27-33. doi:10.1053/j.sempedsurg.2006.10.004
- Cincinnati Children's Hospital Medical Center. (2007, November 14). Evidence Based Clinical Practice Guideline for Hypertrophic Pyloric Stenosis. *Guideline 21*, 1-17. Retrieved from <http://flourishpaediatrics.com.au/docs/pyloric-stenosis-cincinnati-cpguidelines048cbb.pdf>
- Garza, J. J., Morash, D., Dzakovic, A., Mondschein, J. K., & Jaksic, T. (2002). Ad libitum feeding decreases hospital stay for neonates after pyloromyotomy. *Journal of Pediatric Surgery*, *37*(3), 493-495. doi:10.1053/jpsu.2002.30874
- Leinwand, M. J., Shaul, D. B., & Anderson, K. D. (2000). A standardized feeding regimen for hypertrophic pyloric stenosis decreases length of hospitalization and hospital costs. *Journal of Pediatric Surgery*, *35*(7), 1063-1065. doi:10.1053/jpsu.2000.7772
- Puapong, D., Kahng, D., Ko, A., & Applebaum, H. (2002). Ad libitum feeding: Safely improving the cost-effectiveness of pyloromyotomy. *Journal of Pediatric Surgery*, *37*(12), 1667-1668. doi:10.1053/jpsu.2002.36687
- Sola, J. E., & Neville, H. L. (2009). Laparoscopic vs open pyloromyotomy: A systemic review and meta-analysis. *Journal of Pediatric Surgery*, *44*(8), 1631-1637. doi:10.1016/j.jpedsurg.2009.04.001
- St. Peter, S. D., Holcomb, III, G. W., Calkins, C. M., Murphy, J. P., Andrews, W. S., Sharp, R. J., . . . Ostlie, D. J. (2006). Open versus laparoscopic pyloromyotomy for pyloric stenosis: A prospective, randomized trial. *Annals of Surgery*, *244*(3), 363-370. doi:10.1097/01.sla.0000234647.03466.27
- St. Peter, S. D., Tsao, K., Sharp, S. W., Holcomb III, G. W., & Ostlie, D. J. (2008). Predictors of emesis and time to goal intake after pyloromyotomy: Analysis from a prospective trial. *Journal of Pediatric Surgery*, *43*(11), 2038-2041. doi:10.1016/j.jpedsurg.2008.04.008