

NCCU CLINICAL GUIDELINES
SECTION: 6

NUTRITION: ENTERAL AND PARENTERAL

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Gastro-oesophageal reflux
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GASTRO-OESOPHAGEAL REFLUX (GOR) IN THE NEWBORN

Gastro-oesophageal reflux (GOR) is the passage of stomach contents into the oesophagus and in mild form, is a normal physiological process.^{1, 2}

GOR most commonly is due to the inappropriate relaxation of the lower oesophageal sphincter and it occurs more frequently in neonates, especially preterm neonates, than in older infants and children¹.

GOR is usually self-limiting with resolution during the first two years of life. The approach to management will vary in the setting in which it is encountered. Most GOR is non-pathological and does not require any treatment beyond explanation and reassurance to parents. However GOR can occasionally cause clinical signs in neonates in the NCCU.

PATHOLOGICAL GOR MAY PRESENT WITH

- **Cyanotic episodes** - often associated with gagging, gasping or choking behaviour. This is common during the first days of life, especially in neonates who have experienced prolonged or difficult labours. This is also a frequent cause of admission to the PMH neonatal unit during the first 2 weeks of life. Trying to decide if this is a gastro or neurological problem can be difficult.
- **Apnoea & Bradycardia** – with or without obvious vomiting.
- **Poor growth** with excessive vomiting.
- **Irritability or pain**
- **Respiratory symptoms** may be mild 'rattily breathing' or more significantly with wheezing or aspiration. This is often the most contentious problem, i.e. can GOR (silent or otherwise) be complicating existing respiratory disease e.g. CLD/BPD, post diaphragmatic hernia and oesophageal atresia repair etc. or neonates with neurological disorders.

DIAGNOSIS

1. **Clinical.** GOR is very frequent, usually uncomplicated and does not require investigation or treatment. Not all vomiting is due to GOR especially in the new-born. Congenital anomalies can limit gastric emptying or function. Bile-stained vomiting has a completely different connotation. Vomiting may be a part of a non-gastroenterological problem e.g. UTI, metabolic disease etc. GOR may coexist with the above presentations but not be responsible for them e.g. cyanotic episodes due to seizures, apnoea's and bradycardias due to prematurity, poor growth due to a UTI, haematemesis and/or melena due a GIT problems or respiratory symptoms due to H-type fistulas etc.
2. **Barium swallow.** Useful to rule out other structural problems or sometimes to help rule in silent GOR

3. **The 24 hour pH study.** The Gold Standard. This study arbitrarily distinguishes normal from abnormal amounts of reflux of acidic stomach contents into the oesophagus. Note a pH study does not demonstrate non acid reflux.
4. **Endoscopy, manometry & radionuclide milk scans** are rarely required.

MANAGEMENT

1. **Reassurance & Explanation** if GOR is non-pathological.
2. **Upright positioning to 20-30 degrees** appears safe and easy. Do not position prone because of the increased risk of SIDS.
3. **Food thickening agents** are no longer used in the NCCU to thicken breast milk or formula, or to make a gel to administer before, during or after a breast- or formula feed. Use of gum-based thickening agents has been associated with NEC³⁻⁶ and evidence supporting a benefit for using thickened feeds to manage GOR is weak². A commercially prepared, anti-reflux term formula containing modified corn starch will continue to be available for formula-fed infants in the Unit. The nutrient content of this powdered formula can be modified by the further addition of standard term formula if a more nutrient dense feed is necessary to promote growth – recommend contacting the dietician.
4. **Fluid volume** may need to be reduced to assist in managing reflux and use of a ‘slow-teat’ may be helpful for bottle-fed infants. If reduction in fluid volume compromises nutritional status and growth, consideration should be given to increasing the nutrient density of feeds – recommend contacting the dietician.
5. **Prokinetic agents** should not be used in GOR or in the baby who is slow to establish feeds. Many studies have failed to show any clear benefit in the neonatal population. These drugs are associated with rare but significant side effects e.g. prolonged QT interval with Cisapride and extra-pyramidal neurological effects with metoclopramide.
6. **Transpyloric tube feeds** have occasionally been useful in the interim in babies with other problems who can’t tolerate feeds due to significant GOR.
7. **Fundoplication** is occasionally performed in babies with significant GOR and swallowing difficulties (usually neurological) resulting in recurrent aspiration; often a **gastrostomy** is required in this situation. Fundoplication can be required post Diaphragmatic Hernia and Oesophageal Atresia repair as these babies frequently suffer significant GOR.
8. **Antacid medications** such as Ranitidine and Omeprazole have a role if oesophagitis is thought to be present. Mixtures such as Mylanta and Infant Gaviscon can be helpful if an occasional dose is required but regular use is not recommended because they cause constipation and because of their high aluminium content.
9. **Avoid gastric ‘irritants’** if possible. Drugs such as Caffeine increase the risk of GOR. Some antibiotics can be a problem, e.g. Augmentin & Flucloxacillin. Cow’s milk protein intolerance can also cause significant vomiting which only settles with a change of formula e.g. soya.

REFERENCES

1. Huang RC, Forbes DA, Davies MW. Feed thickener for newborn infants with gastro-oesophageal reflux. *Cochrane Database Syst Rev.* 2002; (3): CD003211.
2. Vandenas Y, Rudolph CD, Di Lorenzo C, Hassall E, Liptak G, Mazur L, et al. Pediatric gastroesophageal reflux clinical practice guidelines: joint recommendations of the North American Society for Pediatric Gastroenterology, Hepatology, and Nutrition (NASPGHAN) and the European Society for Pediatric Gastroenterology, Hepatology, and Nutrition (ESPGHAN). *J Pediatr Gastroenterol Nutr.* 2009; **49**(4): 498-547.
3. Beal J, Silverman B, Bellant J, Young TE, Klontz K. Late Onset Necrotizing Enterocolitis in Infants following Use of a Xanthan Gum-Containing Thickening Agent. *J Pediatr.* 2012.
4. Clarke P, Robinson MJ. Thickening milk feeds may cause necrotising enterocolitis. *Arch Dis Child Fetal Neonatal Ed.* 2004; **89**(3): F280.
5. Clarke P, Robinson MJ. Feed thickeners and NEC: too risky to chance. *J Perinatol.* 2012; **32**(6): 479.
6. Mercier JC, Hartmann JF, Cohen R, Tran H, Biriotti V, Kessler A. [Intestinal occlusion and enterocolitis caused by Gelopectose]. *Archives francaises de pediatrie.* 1984; **41**(10): 709-10.