FACULTY

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LEARNING OUTCOMES

On completion of this program, participants will be better able to:

- **Deliver** a nutrition 1st message and aim to change behaviour amongst GP's to consider adopting nutritional solutions versus medication for infants.
- **Follow** the ROME IV guidelines which also recommends GP's 1st provide parental reassurance and then adopt a nutrition first approach.
- **Write** PPi scripts for infants experiencing reflux & regurgitation symptoms.
- **Medicating** infants and understand role of nutrition and how choosing the right formula can alleviate the symptoms.

Aptamil Gold+ Reflux – A Nutritional Approach To Relief Of Infant Reflux And Regurgitation

INTRODUCTION

Gastro-oesophageal reflux (GOR) refers to the retrograde, involuntary movement of gastric contents in and out of the stomach, and when this is high enough to be visualised, it is known as regurgitation.[1] Up to one in three infants suffer from regurgitation or mild reflux[2,3] and this can have a significant impact on families as these conditions may be associated with parental anxiety, increased healthcare costs, and short- and long-term health impacts for the infant.[1,4]

While regurgitation is a normal physiological event in infants, gastro-oesophageal reflux disease (GORD) is distinguished by the presence of organic complications such as oesophageal narrowing or inflammation, upper airway or pulmonary aspiration, and/or troublesome symptomatology.[5] It is important for GPs to be able to distinguish physiological regurgitation from GORD as this can prevent unnecessary doctor visits, investigations and therapies.[1]

Diagnosis of regurgitation

The diagnosis of regurgitation in infants relies almost exclusively on clinical history and examination, particularly for the exclusion of red flags.[5] The ROME IV diagnostic criteria for infant regurgitation are provided in **Table 1**.

Table 1. ROME IV diagnostic criteria for infant regurgitation[1]

Must include both of the following in otherwise healthy infants aged 3 weeks to 12 months:
1) Regurgitation ≥2 times per day for ≥3 weeks.
2) No retching, haematemesis, aspiration, apnoea, failure to thrive, feeding or swallowing difficulties, or abnormal posturing.

Practice tips

- Up to one in three infants suffer from regurgitation or mild reflux[2,3] and this can have a significant impact on families.[1,4]
- It is important for GPs to be able to distinguish physiological GOR/ regurgitation from GORD as this can prevent unnecessary doctor visits, investigations and therapies.[1]
- Postprandial left-sided and prone position as well as thickened feedings / anti-regurgitation formulas have been shown to reduce regurgitation in healthy infants.[1]
- Aptamil® Gold+ Reflux provides a carob bean gum thickened formula option for formula fed infants with regurgitation or mild reflux that also contains prebiotic oligosaccharides (to support digestive comfort) and LCPs (to support brain and eye development in early life).[12–14]

Management of infant regurgitation

Treatment goals in infant regurgitation focus on reassuring parents and providing effective symptom relief while avoiding complications of regurgitation and adverse events of drug therapies.[1,6]

Medications are not recommended in the management of uncomplicated infant regurgitation.[1,5,6] This is based on randomised trials that have shown a lack of benefit of proton pump inhibitors (PPIs) in infants with regurgitation and because treatment can be associated with adverse effects, mainly gastrointestinal and respiratory infections.[1] Although available studies do not suggest an increase in adverse effects with PPIs in paediatric versus adult populations,[5] there is some evidence to suggest an increased rate of respiratory and urinary tract infections, necrotising enterocolitis and *Clostridium difficile* infections in children and infants treated with PPIs.[7]

A nationally representative, prospective, cross-sectional survey of GP activity in Australia from 2006–2016 suggested that acid suppressants may be overprescribed to infants.[8] Overall, acid suppressants were prescribed in 43.6% of visits for reflux and 48.5% of visits for GORD, with similar rates for counselling, advice or education (reflux: 38.5%; GORD: 43.4% of visits).[8]

Symptom relief in otherwise healthy infants can be achieved via parental education on positioning after feeds and nutritional approaches.[1] Thus, it is vital to take a feeding history and ensure that overfeeding is not occurring.[1]

Postprandial left-sided and prone position as well as thickened feedings / anti-regurgitation formulas have been shown to reduce regurgitation in healthy infants.[1] An overview of thickened formulas that are currently available in Australia is shown in **Table 1**.

Table 1. Comparison of thickened formulas that are currently available in Australia*

	Aptamil Gold+ Reflux	Novalac Reflux†	NAN AR‡	S26 Gold AR§
Size	900g	800g	800g	900g
Whey: Casein	60:40	Unavailable	100% whey (hydrolysed)	20:80
Thickener to help feed stay down	Carob bean gum	Corn starch	Potato starch	Corn starch
LCPs (Omega-3 DHA, Omega-6 AA)	✔	✘	✘	✔
Prebiotic oligosaccharides	✔	✘	✘	✘

* Chart provides details of selected nutrients only. For more information, refer to individual product information and websites.
† Novalac Reflux Product Information. http://www.infantfeedingproblems.com.au/en/products/novalac-reflux/ Accessed May 2020.
‡ NAN AR Product Information. https://shop.nestlebaby.com.au/collections/formula/products/nan-a-r-800g Accessed May 2020.
§ S-26 Gold AR Product Information. https://www.bubbahood.com.au/s26/gold/anti-reflux/. Accessed May 2020. LCP, long-chain polyunsaturated fatty acid.

The role of Aptamil® Gold+ Reflux in managing infant regurgitation

Aptamil® Gold+ Reflux is a thickened formula that has been specially developed for formula-fed infants with regurgitation or mild reflux. It is nutritionally complete and suitable for formula-fed infants from birth to 6 months or as part of a mixed diet from 6–12 months. Aptamil® Gold+ Reflux is suitable for ongoing use during and after reflux is resolved.

Thickening agents used in infant formulae

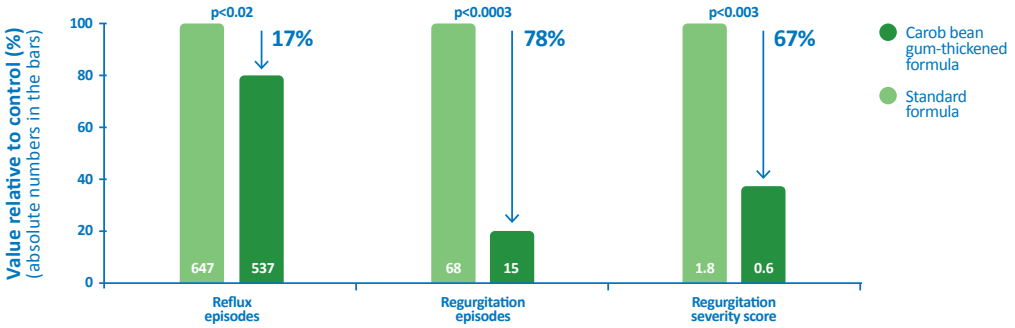
Carob bean gum, corn starch and potato starch are used as thickening agents in infant formulae.[9] Aptamil® Gold+ Reflux is thickened with carob bean gum – a non-caloric thickener that resists digestion in the mouth and maintains thickness in the stomach.[10] In contrast to the other thickeners, carob bean gum does not alter the energy distribution of infant formula and is excreted unchanged in the faeces or fermented by the gut microbiota.[9]

Take home messages

- Regurgitation is very common in infancy. While it is a normal physiological process, it can have profound impacts on caregivers.
- The mainstay of treatment for GOR/ regurgitation is parental reassurance.
- Exclusion of GORD/ GERD is vital because babies with this condition have negative consequences and will require consideration of additional management strategies.

A randomised, placebo-controlled crossover study was performed to assess the influence of carob bean gum thickened formula on reflux and regurgitation.[11] Fourteen infants (42 ± 32 days old) with recurrent regurgitation and without other symptoms were fed alternately with thickened and non-thickened, but otherwise identical, formula. Overall, six feeding intervals were examined (342 hours in total) including 1183 reflux episodes and 83 episodes of regurgitation.[11] Results showed that carob bean gum thickened formula significantly reduced regurgitation frequency and amount versus standard formula (**Figure 1**).[11]

Figure 1. Reflux and regurgitation with carob bean-gum thickened versus standard formula[11]



Adapted from Wenzl TG, Schneider S, Scheele F, Silny J, Heimann G, Skopnik H. Effects of Thickened Feeding on Gastroesophageal Reflux in Infants: A Placebo-Controlled Crossover Study Using Intraluminal Impedance. Pediatrics. 2003 Apr 1;111(4):e355–9.

Prebiotic oligosaccharides

Aptamil® Gold+ Reflux contains prebiotic oligosaccharides (scGOS/lcFOS [9:1]) to support digestive comfort and promote softer, more regular stools.[12,13] A study of 90 infants demonstrated that supplementation of infant formula with a mixture of galacto- and fructo-oligosaccharides had a dose-dependent stimulating effect on the growth of ***Bifidobacteria*** and ***Lactobacilli*** in the intestine and was associated with softer stools.[12] These findings were further supported by a prospective, double-blind study of 140 infants that demonstrated that infant formula containing prebiotic oligosaccharides was associated with suppression in the numbers of clostridia in the faeces, with a trend towards a higher percentage of stool bifidobacteria

The intestinal flora of breast-fed infants is generally dominated by bifidobacteria, and this has been shown to stimulate the immune system and inhibit both gram positive and gram negative pathogenic bacteria.[13]

and a lower percentage of E. coli compared with standard formula.[13] A reduction in clostridia is beneficial because of their association with atopic disease.[13] Infants in the prebiotic group also had significantly softer stools compared with the control group.[13]

Long-chain polyunsaturated fatty acids

Long-chain polyunsaturated fatty acids (LCPs) are required for normal growth and maturation of numerous organ systems, most importantly the brain and eyes.[14] Infants cannot synthesise omega-3 and omega-6 LCPs and, as a result, the available evidence strongly supports the benefits of adding these to infant formula.[14] In an attempt to match the LCP status of breastfed infants, infant formulae contain various concentrations and ratios of LCPs.[14] Aptamil® Gold+ Reflux has been formulated to contain the LCPs omega-3 docosahexaenoic acid (DHA) and omega-6 arachidonic acid (AA) to support brain and eye development in early life.[14,15]

BREASTMILK IS BEST FOR BABIES:

Professional advice should be followed before using an infant formula. Introducing partial bottle feeding could negatively affect breast feeding. Good maternal nutrition is important for breastfeeding and reversing a decision not to breastfeed may be difficult. Infant formula should be used as directed. Proper use of an infant formula is important to the health of the infant. Social and financial implications should be considered when selecting a method of feeding.

Course resource centre

Clinical papers

- Bell JC, Schneuer FJ, Harrison C, Trevena L, Hiscock H, Elshaug AG, et al. Acid suppressants for managing gastro-oesophageal reflux and gastro-oesophageal reflux disease in infants: a national survey. Arch Dis Child. 2018;103(7):660–4.
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- Koletzko B, Bergmann K, Brenna JT, Calder PC, Campoy C, Clandinin MT, et al. Should formula for infants provide arachidonic acid along with DHA? A position paper of the European Academy of Paediatrics and the Child Health Foundation. Am J Clin Nutr. 2019; 111(1):10–16.
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- Salvatore S, Abkari A, Cai W, Catto-Smith A, Cruchet S, Gottrand F, et al. Review shows that parental reassurance and nutritional advice help to optimise the management of functional gastrointestinal disorders in infants. Acta Paediatr. 2018;107(9):1512–20.
- Vandenplas Y, Abkari A, Bellaiche M, Benninga M, Chouraqui JP, Çokura F, et al. Prevalence and Health Outcomes of Functional Gastrointestinal Symptoms in Infants From Birth to 12 Months of Age. J Pediatr Gastroenterol Nutr. 2015;61(5):531–7.
- Vandenplas Y, Hauser B, Salvatore S. Functional Gastrointestinal Disorders in Infancy: Impact on the Health of the Infant and Family. Pediatr Gastroenterol Hepatol Nutr. 2019;22(3):207.
- Wenzl TG, Schneider S, Scheele F, Silny J, Heimann G, Skopnik H. Effects of Thickened Feeding on Gastroesophageal Reflux in Infants: A Placebo-Controlled Crossover Study Using Intraluminal Impedance. Pediatrics. 2003;111(4):e355–9.

Professional associations

- Australian Breastfeeding Association for Health Professionals.
- Australian Paediatric Society.
- Food Standard Australia New Zealand (FSANZ).

Resources for parents

- Australian Breastfeeding Association.
- Australian Government Department of Health: Get Up and Grow: Infant Formula.
- Nutricia website.
- Reflux Infants Support Association (RISA) Inc.

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