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## Reflux in infants

### Abstract

*Reflux and Gastro oesophageal Disease (GORD) in infants is a commonly known condition, yet research indicates that it is often over diagnosed and poorly managed. Nurses and health care professionals are often the first contact that parents have when concerns about their child's feeding arise. In order to ensure that these infants, children and young people are provided with appropriate access to education and management options, it is essential that professionals are equipped with knowledge on the differences between Reflux and GORD and what interventions are in the best interests of the child and family. This article discusses the common symptoms of Reflux and GORD and what strategies can be developed to ensure effective nursing care is delivered from the outset of assessments.*

### Introduction

Reflux and gastro- oesophageal reflux disease (GORD) is described as being where stomach contents (feeds) and acid are expelled up from the stomach through the lower oesophageal sphincter ( cardiac sphincter) into the oesophagus and mouth (Kirby et al. 2015; Douglas, 2013; Terblanche, 2010).

It is important to establish that there are defined differences between Reflux and GORD. Reflux is common in infants under one year of age and can be a characteristic of a normal gastric function in young infants where the gastrointestinal system is still immature (Douglas 2013; Bell et al 2018). Reflux in itself presents as regurgitation of milk feeds with little or no distress or discomfort, it is expected to resolve independently by one year of age with no need for medical intervention (Omari et al, 2002; NICE 2015). GORD is described as being reflux that is associated with some degree of oesophageal damage and can impair quality of life. GORD presents with physiological symptoms of pain, discomfort with crying and feed aversion, and may result in faltering growth, oesophagitis, aspiration and associated respiratory conditions (NICE 2015; Omari et al. 2002; Hua et al, 2014). Reflux is reported to affect almost half of all babies under three months of age, the regurgitation of feeds in newborns is not unusual and should not raise professional alarm (Hua et al 2014; Kirby et al 2016).

However, when this is associated with crying and perceived pain, parents are often understandably anxious for their child. Parents often present in Community Baby Clinics, GP surgeries, walk in centres and Accident and Emergency departments with concerns that their child is in pain and regurgitating or vomiting feeds.

Nurses and Health Visitors are most commonly the first health care professionals to be presented with these babies and children. Therefore it is essential that all nurses are equipped with skills to complete efficient holistic assessments and able to differentiate between reflux, GORD or other conditions that affect the comfort and feeding of infants and children. Premature babies are more at risk of reflux and GORD, due to health complexities that could be affecting feeding (Psaila et al 2014; Omari et al 2002). Equally children with

neurological conditions, cystic fibrosis and oesophageal atresia are at increased risk of severe GORD (Omari et al, 2002). Children and young people can also be affected by reflux and GORD, although this is less common and more often attributed to physical illness, medication or obesity.

### Learning Outcomes

► Differentiate between the symptoms of Reflux and GORD in infants, children and young people.
► Recognise what education and support can be provided to parents and carers to help manage symptoms.
► Develop awareness of the conservative approaches to care that can be provided, and to recognise when care needs to be reassessed and alternative management strategies considered.
► understand the rationale behind recommended interventions and explain this to parents and carers of infants, children and young people affected by symptoms of reflux and GORD.

### Assessment

As with all nursing assessments a complete and comprehensive approach is required. It is important to ascertain any presenting symptoms, feeding patterns and medical histories, social circumstances alongside parental concerns and ideas.

Where some degree of post prandial regurgitation and non-forceful vomiting is common in babies and children, the frequency and volume need clarification, is this affecting growth and weight gain ?, are any other symptoms present that could indicate more complex health issues ?

### Red Flags

Symptoms such as

- feed aversion
- weight loss,
- choking,
- apnoea,
- irritability,
- perceived indicators of pain,
- sleeping difficulties
- any life-threatening occurrences,

These need to be assessed to ensure other health complications are excluded and GORD is established as the only possible diagnosis. Premature infants, children with cystic fibrosis, oesophageal atresia or neurological impairment are at heightened risk of developing severe GORD (Terblanhe 2010; Omari et al 2002; NICE 2015).

The root cause of any reflux or GORD needs to be established as part of the assessment process in order to ensure appropriate management can be initiated (Terblanche, 2010, NICE 2017). Investigations are rarely required unless other alarming factors are identified through assessment and examination (NICE 2015;Terblanche 2010;Omari et al 2002;Kirby et al 2015). If this process indicates a need for investigations due to severe GORD or to eliminate other health complexities, Ph monitoring, gastric motility tests and endoscopy are the first actions that are recommended by NICE (2015).

When other health complications are eliminated, it is then important that the nurse is able to recognise where Reflux and GORD differ and is able to support a suitable therapeutic approach in the management of the presenting symptoms.

### Common symptoms

REFLUX	GORD
Post-prandial regurgitation ( can last 3-5 mins) up to 3 times day in infants	More frequent Post-prandial regurgitation in infants
	Non forceful vomiting in infants and children
Infant settles after feed	Back arching during and after feeds in infants
Completes feed in infants	Feed aversion in infants and children
Attaches to breast or bottle with little distress in infants	Excessive crying during feed in infants
Comfortable in supine position in infancy	Haematemesis
Strange taste in mouth in children and young people ( acid backflow)	Wriggles and cries in supine position in infants
Heartburn in young people	Irritability in infancy
	Ear ache in children and young people
	Worsening asthma in children and young people ( or respiratory problems)
	Aspiration and/or apnoea in infants
	Faltering growth and/ or weight loss
	Chest pain in children and young people
	Hoarseness in children and young people
	Abdominal pain in children and young people
	Nausea in children and young people

### Management of Reflux

Reflux alone with the only presenting symptom being post prandial regurgitation or low volume non forceful vomiting should be managed with education and support for parents and the avoidance of medication ( NICE 2015;Hua 2014;Kirby et al 2015;Douglas 2013).

## **Non Nutritive sucking**

There is some research that suggests non-nutritive sucking ( use of a dummy) may help inhibit acid production and settle a baby if used directly prior to feeds (Psaila et al, 2014). Psaila et al (2014) studied 38 premature infants to identify whether the use of a dummy for 20-39 minutes before a feed would reduce acid build up and post prandial regurgitation. Results indicated that the dummy had a significant effect on reducing the number of Reflux episodes but did not effect the time until any episodes passed after a feed. PH monitoring was used to evidence the gastric residuals acidic value and supported lower acidity in the control group who used the dummy pre feed, these infants were also reported to have reduced fussiness at feed times and less episodes of crying. However the research for non-nutritive sucking is limited and must be considered with the controversial advice on dummy use.

## **Positioning**

Nursing infants in upright supine position ( up right, front down on parents/carers chest, head resting on shoulder, with parent/carer sat up or standing) is often recommended (NICE 2015;Bargaouli, Bellaiche and Clerson 2014) to help reduce post prandial regurgitation. It is suggested that this position for 20-30 minutes post feed allows stomach contents to settle, hence reduce the risk of feed and acidic back flow up the oesophagus. To facilitate this position safely, parents and carers needs advice on the optimal position and educated to be aware that this is only safe for infants when awake and in parents/carers arms, and not safe for feeding or sleeping positions. It is essential to ensure that parents and carers are supported to maintain safe sleeping guidelines in order to minimise risk of Sudden Infant Death Syndrome (Bargaouli, Bellaiche and Clerson 2014; NHS 2018; Hua 2013).

## **Volume and Frequency of feeds**

NICE (2015) advise that small frequent feeding will help reduce stomach extension, over full stomachs and therefore reduce post prandial regurgitation, feed regurgitation and discomfort in infants and young children. Feeding patterns need to be clarified and parents of formula fed infants encouraged to offer the same total volume of daily feeds in small feeds with increased occurrence, for example if formula fed infant feeds 120 mls every four hours, changing to 60mls every two hours can help reduce symptoms of reflux such as regurgitation and post feed discomfort. Frequency of feeds for breast fed infants is also encouraged to help the infant regulate their feeds, ensure adequate supply and minimise symptoms. Parents are often misguided by the belief that infants and children should be fed 4 hourly, education around stomach capacity of babies and the benefits of feeding more regularly can help change these perceptions and provide support to parents in managing their child's feeding behaviours enabling a reduction in symptoms of Reflux (Carroll,Garrison and Christakis 2002). Similar feeding behaviours for children and young people is recommended to minimise over fill of the stomach and avoid increased acid production, stomach distension and associated pain or vomiting ( Rul Gomez et al, 2010).

## **Use of Feed Thickening Agents**

NICE (2015) advise that if feeding regimes do not make significant improvements and Reflux symptoms continue, the use of feed thickeners should be trialled for an initial period of 1-2 weeks. There are some thickened formula milk preparations available or a thickening agent could be used for breastfed babies. If symptoms improve the use of feed thickener can be continued and trialled occasionally to see if symptoms have resolved and the thickening agents can be discontinued. A study by Kwok, Ohja and Dorling (2017) reviewed 637 infants who were using feed thickeners to manage Reflux and GORD symptoms. 95% of the sample were reported as having 2 fewer episodes of regurgitation each day and were 2.5 times more likely to be asymptomatic when on feeds contained thickening agents. No side effects of the thickening agents were reported in any of the sample participants. PH studies were performed on the sample and supported the results, representing a reduction in stomach acid by 5% in babies who received feed thickeners.

## **Use of Sodium Alginate products**

NICE(2015) advises that as a last line treatment for Reflux, the trial of a sodium alginate product such as Gaviscon could be tested. They advise a short trial of 1-2 weeks to assess efficacy and to discontinue use if no improvement in symptoms is apparent. Where significant reduction of symptoms occurs, NICE (2015) recommend continued use with regular trials off treatment to reassess whether symptoms persist or the child has outgrown the Reflux. Sodium Alginate products work by providing a barrier on the surface of gastric contents and forming a raft, therefore allowing the product to enter the oesophagus rather than gastric contents (Malcom et al 2008).

Clinical studies (Hua et al 2014; Bell et al 2018; Kirby et al; 2015; Douglas 2013) report that the use of Sodium Alginate products merely offer a placebo effect and their use should be limited. These products have potential side effects such as increased respiratory infections. As they contain high sodium content there is also be an increased risk of renal complications such as hyponatremia (Zentilin et al 2005) .

Corvaglia et al (2011) researched 32 infants who all were symptomatic with Reflux, results show that management with a sodium alginate product decreased gastro s reflux in the whole sample. Ph monitoring evidenced that infants treated with this product had reduced stomach acidity and less regurgitation that reached the proximal oesophagus, therefore showing significant reduction in signs of Reflux. This study offers promising efficacy on the use of sodium alginate products, however clinical assessment and education strategies should guide its short-term use.

## **Managing GORD**

GORD differentiates from Reflux in the severity of its symptoms and its impact on the gastro- intestinal tract. GORD affects an infant, child or young persons quality of life and can present with serious complications, such as apnoea, aspiration, oesophageal inflammation and damage (oesophagitis) faltering growth. GORD in infancy is often associated with excessive crying due to perceived pain, which has a negative effect on continued

breastfeeding, infant and parent attachment alongside maternal health (Douglas 2013). Management of GORD requires intervention from the outset, similar strategies for education and support of parents and carers to those recommended in Reflux are guided by NICE (2015) in the first instance. Where these are not seen to be effective further medical management can be initiated, a trial of 4 weeks is advised to ascertain efficacy, prior to reassessment and controlled periods of no treatment to establish the need for continued medication.

### **H2 Receptor Blockers (H2RA)**

H2 receptor blockers or antagonists such as Ranitidine (BNF 2018/19), are prescribed for extreme symptoms of GORD. These medications block the reaction of histamine within the parietal cells in the stomach. This mechanism decreases the production of acid and reduces symptoms of GORD that are caused by excessive acid production. Studies such as those by Zentilin et al (2005) and Corvaglia et al (2011) highlight that these drugs can increase the risk of necrotising enterocolitis in low birth weight infants and may increase the risk of sepsis in infancy, and should be used with extreme caution and monitoring within infant, children and young people.

### **Proton Pump Inhibitors (PPI)**

These drugs such as omeprazole and lansoprazole (BNF 2018/19), is pronounced and long-lasting reduction of stomach acid. PPIs are classed as the most beneficial inhibitor of gastric acid secretions. PPIs are specifically for treatment of severe GORD, they are generally well tolerated although have recognisable side effects such as abdominal pain, nausea and vomiting that could be misinterpreted as being ineffective in managing all symptoms of GORD. PPIs increase the risk of clostridium difficile (infection of the colon) and long-term use may increase risk of osteoporosis and bone fractures. Their use in children is minimal and directed by medical assessment for severe and potentially life limiting GORD (Davis et al 2015;NICE 2015).

### **Surgical intervention – Nissen fundoplication**

In extreme cases where medical management has not resulted in satisfactory weight gain and serious concerns continue over a child's ability to grow, maintain adequate nutrition and a healthy life surgery is considered. Nissen Fundoplication's are rare and often only required in infants or children with complications of GORD due to chronic health needs or faltering growth. Investigations will be completed prior to surgical intervention and directed by surgical teams within acute care. A Nissen fundoplication is where the lower oesophageal sphincter is surgically tightened to reduce risk of any regurgitation from feeds, acid or vomiting. This is not usual practice for reflux however in extreme cases of GORD provides infants and children the opportunity to be more permanently asymptomatic (Rothenberg 2004), with improvements to health and quality of life.

### **Supporting parent's anxiety**

Parents and carers need to be equipped with knowledge and techniques of how to manage their child's crying and possible feed aversion (Scherer et al 2013). The strategies mentioned

above such as positional adaptations, changes to feed patterns alongside listening and professional reassurance may help parents to feel supported and maintain the infant child attachment (Hua et al 2015). Excessive crying that is associated with challenging feed behaviours can increase parents anxiety, with a negative effect on how their child respond and settle (Khoshoo and Thompson 2007). Professional reassurance and guidance must be at the centre of all interventions (NICE 2015).

## Summary

Research suggests that the incidences of diagnosed reflux and GORD is increasing exponentially (Bell et al 2017). Kirby et al (2015) reports through an Australian study of 400 cases of infantile reflux and GORD that over diagnosis is possibly occurring, with health care professionals feeling the need to medically manage rather than treat with a conservative approach.

In order to ensure that infants, children and young people are provided with the best possible nursing care, it is essential that all health care practitioners who have contact with infants, children and young people are able to complete holistic assessments, differentiate between Reflux and GORD and initiate effective education and management plans that support both the child and family, reducing the risk of over treatment for Reflux or worsening health in ill managed GORD ( Bell et al 2017; Kirby et al 2015;Terblanche 2010).

## CPD Questions

► Have you ever assessed a child with symptoms of Reflux or GORD ? What was your care plan? Can you now identify any different approaches ?

► Can you identify the differences between Reflux and GORD? Would you feel competent in completing a nursing assessment on a child with these symptoms? When would you consider referral to another specialist?

► What do you feel would assist your confidence and care in managing Reflux or GORD in infants, children and young people ? How will you achieve this ?

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