Management of Gastro-Oesophageal Reflux: infant feeding formula milk

Background

- Passive regurgitation of stomach contents into the oesophagus is a normal finding in infancy. Most is swallowed back into the stomach but occasionally it appears in the mouth or comes out as non forceful regurgitation. At least 40% of infants will have symptoms of reflux at some time.
- Reflux will often improve by 6-8 months but it is not unusual for an otherwise well child to continue to have intermittent effortless regurgitation up to 18 months.
- Parents/carers should seek urgent medical attention if:
  - Regurgitation becomes persistently projectile
  - There is bile-stained (green or yellow-green) or blood in vomit
  - There are new concerns (marked distressed, feeding difficulties, faltering growth)
  - Possible complications of GOR are:
    - Reflux oesophagitis
    - Recurrent aspiration pneumonia
    - Frequent otitis media

GORD (Gastro-oesophageal reflux disease) is a diagnosis reserved for those infants who present with significant symptoms and/or failure to thrive.
- Prematurity, neurodisability, family history of heartburn, hiatus hernia, congenital oesophageal atresia are associated with an increased prevalence of GORD.
- Forceful vomiting should not be ascribed to reflux without closer review of the child’s symptoms. Bilious (green) vomiting is always pathological and warrant urgent same day medical attention.
- GORD can sometimes be a sign of CMPI. The presence of eczema, a family history of allergy / atopy and additional gastrointestinal symptoms should prompt consideration of a cows’ milk protein intolerance. CMPI can occur in breast fed infants (see advice on CMPI).
- Consider UTI especially if faltering growth or late onset, or frequent regurgitation + marked distress.

Onward referrals

<table>
<thead>
<tr>
<th>Referrals</th>
<th>Indications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Same day to Secondary Care</td>
<td>Worsening or forceful vomiting in infant &lt;2months Unexplained bile-stained vomiting</td>
</tr>
<tr>
<td></td>
<td>Haematemesis or Maleana or Dysphagia</td>
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<tr>
<td>Urgent to Secondary Care</td>
<td>No improvement in regurgitation &gt;1year old</td>
</tr>
<tr>
<td>Secondary Care</td>
<td>Persistent faltering growth secondary to regurgitation, Feeding aversion + regurgitation. Suspected recurrent aspiration pneumonia, Frequent otitis media, Suspected Sandifer’s syndrome Unexplained apnoea, Unexplained non-epileptic seizure-like events, Unexplained upper airway inflammation If thought necessary to ensure acid suppression</td>
</tr>
</tbody>
</table>

Taken from 'West Sussex Infant Feeding Guidelines and appropriate prescribing of specialist infant formula milk'. Produced: July 2017  Review date: July 2019
Management of Gastro-Oesophageal Reflux:

**Management of GOR**

- Do not use positional management in sleeping infants. They should be placed on their back.
- Starch-based thickeners (Thick & Easy, Nutilis, Resource thicken up) **are not** suitable for children under 1 year (unless faltering growth / recommended by paediatric specialist).
- Pro motility agents such as domperidone should not be initiated in primary care. There is no evidence of benefit when treating infantile GOR and they can cause paradoxical vomiting and have been associated with a risk of cardiac side effects.

**Formula milk available**

<table>
<thead>
<tr>
<th>Formula milk type</th>
<th>Suitable from</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>OVER THE COUNTER formula milk thickener</strong></td>
<td></td>
<td>Not to be used with thickening formula milk or Infant Gaviscon®</td>
</tr>
<tr>
<td>Instant Carobel® (add to expressed breastmilk or formula milk)</td>
<td>From birth</td>
<td>Contains carob seed flour May cause loose stools</td>
</tr>
<tr>
<td><strong>OVER THE COUNTER pre-thickened formula milk</strong></td>
<td>Not to be used with thickener or Infant Gaviscon®</td>
<td></td>
</tr>
<tr>
<td>Cow &amp; Gate™ Anti-reflux (Cow &amp; Gate)</td>
<td>Birth to 1 year</td>
<td>Contains carob gum</td>
</tr>
<tr>
<td>Aptamil® Anti-reflux (Milupa)</td>
<td>Birth to 1 year</td>
<td>Contains carob gum</td>
</tr>
<tr>
<td><strong>OVER THE COUNTER thickening formula milk</strong></td>
<td>Not to be used with thickener or Infant Gaviscon®</td>
<td></td>
</tr>
<tr>
<td>SMA Pro Anti-Reflux® (SMA )</td>
<td>Birth to 18 months</td>
<td>Contains corn starch</td>
</tr>
<tr>
<td>Enfamil AR® (Mead Johnson)</td>
<td>Birth to 18 months</td>
<td>Contains rice starch</td>
</tr>
</tbody>
</table>

- Over the counter thickeners / thickened formula milk contain carob gum. This produces thickened formula milk and will require the use of a large hole (fast-flow) teat.
- Thickening formula milk react with stomach acids, thickening in the stomach rather than the bottle so there is no need to use a large hole (fast flow) teat. However thickening formula milk need to be prepared with **cooled** pre-boiled water, which is against recommendation of using boiled water cooled to 70 °C. There is therefore an increased risk of bacteria being present in the milk. This risk should be assessed by a medical practitioner.
- **Thickening formula milk should not be used in conjunction with separate thickeners or with medication** such as Infant Gaviscon®, antacids (e.g. Ranitidine), or with proton pump inhibitors.

**Gaviscon®**

Alginate therapy may cause a change in the baby’s stool, and in rare occasion constipation.

**Resources for parents and health professionals**

- NICE guidelines (NG1) [https://www.nice.org.uk/guidance/ng1](https://www.nice.org.uk/guidance/ng1) GORD in children and young people, January 2015
- Living with reflux website: [http://www.livingwithreflux.org/](http://www.livingwithreflux.org/) includes a Facebook support page
- For breast feeding and bottle feeding advice, visit the UNICEF baby friendly pages: [http://www.unicef.org.uk/BabyFriendly/](http://www.unicef.org.uk/BabyFriendly/)
- Breast feeding counsellors directory provided by the NCT [https://www.nct.org.uk/branches](https://www.nct.org.uk/branches)
Management of Gastro-Oesophageal Reflux:

Infant presents with gastro-oesophageal reflux. Are Red Flag symptoms present?

- Yes
  - Investigate or refer using clinical judgement

- No
  - Reassure
    - GOR very common
    - Usually begins before 6 weeks
    - May be frequent
    - Usually becomes less frequent overtime
    - Does not usually need further investigation or treatment

Breastfed:
- Breastfeeding assessment by trained professional
- Refer to MHL/H Health Visitor

Formula Fed:
- Review feeding history, making up formula, positioning...
- Reduce feed volumes if excessive for infant’s weight (>150mLs/kg/day)
- Offer trials of smaller, more frequent feeds (6/7 feeds/24hrs is the norm)
- Advise parent to purchase pre-thickened formula (need large hole/fast flow teat), for example:
  - Cow & Gate Anti-Reflux™ (carob bean gum)
  - Aptamil Anti-Reflux™ (carob bean gum)
  - OR Thickening agent to add to usual formula (E.g., Instant Carobel™)
  - OR Thickening formula (needs to be made up with cool water – SMA Stay Down™ (corn starch)
    or Infants ABF (rice starch)

If not successful after 2 weeks:
- If using, Stop pre-thickened/thickening formulae or thicker
  - 2 weeks trial of Alginic therapy, e.g., Infant Davison™
  - Bottle fed: 1-2 sachets* into 115mLs (4oz) of feed
  - Breast fed: 1-2 sachets* mixed up into a liquid and given with a spoon

If successful after 2 weeks:
- Try stopping it at regular interval for recovery assessment as GOR usually resolves spontaneously

If not successful after 2 weeks:
- Consider treating as follows:
  - Milk protein intolerance
  - OR refer to paediatrician for further investigation

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