For Healthcare professional's use

Acid suppression in Paediatric patients

Proton Pump Inhibitors (PPIs) are used in the treatment of reflux oesophagitis and stomach ulcers. During reflux, the stomach acid causes irritation of the oesophagus. This is often painful, and it can damage the oesophagus. PPIs are used to reduce the amount of acid made by the stomach, which helps to reduce the irritation and protect the oesophagus.

When PPIs reach the stomach, they are, to a significant extent, destroyed by the acidic environment, which is why most of the preparations are enteric coated: individual granules inside capsules, dispersible tablets, and other formulations. This enteric coating protects the medicine until it reaches the small intestine, where the environment is more alkali, where the coating dissolves and the medicine is absorbed without being destroyed.

Oral liquid PPI suspension is LESS clinically effective than other formulations- Do not prescribe.

The medicine in the licensed oral liquid suspension and all the unlicensed PPI oral suspensions and solutions are not enteric coated, and therefore only a small proportion of the medicine will be available for absorption to exert a clinical effect. Therefore, the oral liquid PPI suspension and solutions are not as clinically effective in alleviating the symptoms of GORD. This is why we are recommending the switch of all PPI liquids to one of the approved formulations.
To minimise the destruction of the PPI, a strong alkali is added to the oral solution, including significant amounts of sodium and potassium. By using the enteric coated formulations, the use of these additives can be avoided.
Swapping liquids to pills can be safer, more cost-effective, more acceptable to patients and carers, and is likely to reduce the carbon footprint of prescribing.

Algorithm for prescribing PPIs in Children

Child Weight
Obtain weight on initiation and at time of review
Dose as per BNFc or current effective dose. Choose the most cost-effective product that is suitable for the patient.
N.B. the most important factor limiting the use of the enteric coated granules is the bore size of the enteral feeding tube. Weight is a good guide but there may be some children >10kg with a <8FR feeding tube who may need the omeprazole oral suspension If a child weighing ≥10kg has an enteral feeding tube <8FR they may also require omeprazole oral suspension SF

Are medicines administered via a feeding tube?

YES

<10kg via tube
Esomeprazole granule sachet* (NG tube >6Fr)
Omeprazole oral suspension SF[L1M] and dose as per BNF-c 20mg/5ml strength preferred due to a lower relative concentration of preservatives per mg.
Note that dispersible tablets likely to block tubes <8FR

10-20kg via tube
Esomeprazole granule sachet[L1]

>20kg via tube
Omeprazole/Lansoprazole capsules opened and mixed with water OR
Esomeprazole granule sachet[L1].

Omeprazole powder for oral suspension must be initiated by a specialist taking in to consideration the electrolyte content (see eSPC)

*Must be prescribed as Nexium®

NO

< 10kg oral
Mezzopram dispersible tablets[OL] (round dose to nearest half or quarter)
Note: tablet cutter required as not scored – see administration note.
Esomeprazole granule sachet [L1]

≥10kg – 15kg oral
Mezzopram dispersible tablets[L1]
Lansoprazole dispersible tablet[OL]
Note: tablet cutter required as not scored – see administration note.
Esomeprazole granule sachet [L1]

≥15 - 30kg oral
Mezzopram® dispersible tablets[L1] or Omeprazole capsule[L1].
Lansoprazole capsule[OL] or dispersible tablet[OL]
Esomeprazole granule sachet [L1]

≥ 30kg oral
Lansoprazole capsule[OL] or dispersible tablet[OL]
Omeprazole dispersible tablets[L1] or capsule[L1]
Esomeprazole granule sachet [L1]

Doses as per BNFc – can round dose to nearest quarter or half tablet. This is still more accurate than giving a precise dose of the liquid formulation with very uncertain bioavailability

Advice on how to teach a child to swallow solid dosing forms is available on medicinesforchildren.org.uk.

L1 – licensed for children over 1 year of age and ≥10kg
L1M – licensed for children over 1month of age
OL – Off-Label

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Deprescribing PPIs in paediatrics

Why is the medication prescribed? Does the patient need to be on the treatment.
If treatment is to be continued- optimise formulation choice.

Consider stopping*/reducing the dose if:

- Indication still unknown
- Started for infant reflux and patient now eating some solids
- Gastro-oesophageal reflux disease (GORD) treated for 4-8 weeks (oesophagitis healed, symptoms controlled)
- Completed *Helicobacter pylori eradication* (in combination with antibiotics)
- Symptom-free for over 3 months
- Started as cover for NSAID/steroid/antiplatelet which is now stopped

* If patient has been on omeprazole for >6 months, reduce dose over 2-4 weeks before stopping to reduce risk of rebound symptoms.

Treatment **should not be stopped** if the child has been diagnosed with:

- Benign gastric ulcer
- Duodenal ulcers
- On-going, uncontrolled GORD
- Acid related dyspepsia
- Zollinger-Ellison Syndrome
- Eosinophilic oesophagitis
- Previous dystonic crises/status dystonicus
- Fat malabsorption despite pancreatic enzyme replacement therapy in cystic fibrosis
- Gastro-protection whilst co-prescribed a potentially ulcerogenic medicine: NSAID; antiplatelets; anticoagulants; corticosteroids; SSRIs; NSAID + SSRIS and/or aspirin.
- Barrett's oesophagus
- Severe oesophagitis
- History of bleeding GI ulcer

Monitor at 2-4 weeks & at 12 weeks for: heartburn, dyspepsia, regurgitation, epigastric pain, loss of appetite, weight loss, and agitation. Advise parents / carers to contact the GP if the symptoms reoccur before the review date.