1.Introduction

This guideline is designed to provide guidance for the Intensive Care Units to encourage enteral feed absorption in adult critical care patients.

Background

Gastrointestinal (GI) smooth muscle has intrinsic activity which can be modified by nerves, local reflexes, and gastrointestinal hormones. This activity produces waves of contraction, which move the gut contents from the stomach to the anus encouraging digestion. Impaired GI motility arising from functional disorders such as constipation dependent irritable bowel syndrome and functional dyspepsia, as well as chronic constipation and gastro-oesophageal reflux disease may be improved by the use of prokinetic drugs. In addition, post-operative ileus, diabetic gastroparesis and delayed gastric emptying in critically ill patients have also been treated with prokinetic agents.

Prokinetic drugs either stimulate the motility of the GI tract or promote the electrolyte/water secretion across the GI tract lumen A number of drugs with prokinetic properties have been considered for clinical use, including metoclopramide, domperidone, tegaserod, cisapride and erythromycin. None have a UK license for use as a prokinetic and tegaserod and cisapride are not licensed in the UK.

2.Guideline

Drugtherapyoptions

Preventative measures

- Maintain Euglycaemia
  High blood glucose has a detrimental effect on gastric motility in both diabetic and normal patients. Erythromycin is not as effective when hyperglycaemia is present.
- Consider drugs which may be aggravating the problem; can they be stopped or decreased? e.g. Morphine, dopamine and antimuscarinic agents

Drug treatment options

Laxatives

Consider Lactulose 20ml tds and Senna 15mg nocte (contra-indicated in Gastro-intestinal obstruction, digestive perforation or risk of digestive perforation).
For alternative agents please discuss with a pharmacist and refer to the UHL Algorithm for the Use of Laxatives in Adults available on INsite via link below:
http://www.lmsg.nhs.uk/wp-content/uploads/2015/05/Laxative_Algorithm_Adults.pdf?UNLID=629387614201813151112

Prokinetics

- Metoclopramide 10mg IV tds for maximum 5 days (due to risks of neurological adverse effects and tachyphylaxis)
    - Promotes gastric emptying by acting as an antagonist (D_2 receptors) to inhibitory actions of dopamine in the gut – results in increased tone of lower oesophageal sphincter, accelerated gastric contractions, increased small bowel transit time
    - Will be ineffective in the presence of a dopamine agonist

Contraindication: Gastrointestinal obstruction, perforation or haemorrhage, phaeochromocytoma, Parkinson's disease and epilepsy

The European Medicines Agency's Committee on Medicinal Products for Human use and the MHRA advice limits the use of metoclopramide to 5 days at a total daily dose of 30mg due to the risk of neurological adverse effects.

- Erythromycin 250mg IV or enteral bd, for maximum 3 days (due to tachyphylaxis) IV route should be reserved for patients with no viable oral/enteral route
    - Prokinetic action due to agonism at motilin receptors – stimulates the migrating motor complex enhancing gastrointestinal contractility
    - Can be increased to 500mg bd by consultant only
    - Given the increasing antibiotic resistance think carefully about prescribing an antibiotic for a non-microbial indication.
    - Beware of Clostridiumdifficilerisk
    - Erythromycin interacts with drugs metabolised by the cytochrome P450 system including: alfentanil, carbamazepine, cyclosporin, digoxin, disopyramide, midazolam, phenytoin, tacrolimus, theophylline, valproate, statins and warfarin. Careful monitoring and dose adjustments may be necessary. Increased risk of myopathy when erythromycin is given with statins, withhold statins for the duration of erythromycin treatment.
    - Contraindications: patients on terfenadine and ergotamine
    - Avoid if patient is already on macrolide class of antibiotic

- Combination: Limited evidence exists that combination may be more effective than erythromycin alone or can be used as an alternative when single agent therapy fails. Maximum duration 3 days (due to tachyphylaxis)

3. Education and Training

None'

4. Monitoring Compliance

What will be measured to monitor compliance	How will compliance be monitored	Monitoring Lead	Frequency	Reporting arrangements
The usage and expenditure of prokinetic agents	Monthly and annual finance reports across the three intensive care sites	Critical care site lead pharmacists	Monthly	

5. Supporting References

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Chapman M, Fraser R, Kluger M et al. Erythromycin improves gastric emptying in critically ill patients intolerant of naso-gastric feeding. Crit Care Med 2000: 28, 7:2334- 2337

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Prokinetics DAT, Ratified CCMM in March 2004. Updated in February 2017 by ITAPS Pharmacy Team

6. Key Words

Prokinetic

Metoclopramide

Erythromycin

CONTACT AND REVIEW DETAILS	
Guideline Lead (ITAPS PHARMACY TEAM)	**Approved by ITAPS Core Group Dec 2017**
Details of Changes made during review: **Update of dose, frequency and duration of prokinetic agents** **Link to LMSG laxative guideline**	
Re Approved as Fit for Purpose By CD and Prea ramasamy 02/08/2021	