

Guidelines for the Medical Management of High Output Stoma

1. BACKGROUND

There are many possible causes of high output stoma including infection and bacterial overgrowth, bowel obstruction, recurrent bowel disease, medicines use. Patients require assessment by specialist for assessment and acute treatment. Though corrective measures may “stop” some of the causes, many patients will require on-going treatment for symptom control and to prevent dehydration.

This guideline gives information on currently approved treatments for high output stoma which may be appropriate for prescribing in primary care, once treatment is stabilised. This guideline is also applicable to patients whose stoma output has increased. This guideline is aimed at patients with a stoma output greater than 1000ml, or fistula output greater than 500mls and type 2 or 3 intestinal failure.

Where treatments are recommended for an unlicensed indication or at an unlicensed dose, this is identified in the text.

2. SUMMARY OF MEDICAL MANAGEMENT

Specialist team will

- **correct deranged electrolytes and replace fluid loss with intravenous fluids.**
- **provide advice to patient (or carers) to restrict oral fluid intake to 1L of hypotonic fluids**
- **initiate medical treatment and, once stabilised, recommend on-going prescribing with one or more of treatments below**

- Double strength Dioralyte (i.e. 1 sachet per 100mls) ~ 1L per day
 - Can be mixed with sugar free cordial to improve taste
 - 1L contains 40mmol potassium

- St Marks Electrolyte Solution (unlicensed medicine)
 - Made up with sodium chloride, sodium bicarbonate and glucose powder

- Loperamide [doses above 16mg daily are unlicensed]
 - Starting dose 4mg tds titrate up to maximum of 16mg QDS
 - Doses ≥8mg use melts
 - 30 minutes before food and at night (timing is important)

- Codeine phosphate 30-60mg qds
 - 30 minutes before food

- Lansoprazole 30mg od - bd

- lansoprazole orodispersible tablets or omeprazole dispersible tablets if absorption likely to be a problem
- specialist may recommend change to famotidine/nizatidine if hypomagnesaemia is a problem
- Magnesium supplementation
 - Magnesium-L-aspartate (Magnaspartate®) 10mmol sachets
 - Dissolve in 50-200mls of water, tea or orange juice
 - One sachet at night, can be increased up to 3 sachets per day (doses above 2 sachets a day are off label)
 - Monitor for diarrhoea/gastro-intestinal upset
 - Additional IV magnesium may also be required occasionally to maintain levels – secondary care only
- Octreotide (off label)
 - Specialist may prescribe 50micrograms BD S/C, increased to 100 micrograms tds, as trial and stop after 2-3 days if no effect
 - If effective and required long term – change to long acting preparation suitable for primary care prescribing as per Shared Care Framework
- Check trace elements and vitamins
 - Many patients with high losses have low selenium levels
 - Oral selenium dose 100micrograms three times daily
 - Consider Forceval if other trace elements also low
- Optimise nutrition – provide nutritional supplements as per specialist dietitian advice

3. FURTHER INFORMATION ON INDIVIDUAL TREATMENTS

Restrict oral fluid intake and use of Dioralyte double strength

When patients drink hypotonic fluids (such as water, tea, coffee, fizzy drinks), are all low in sodium and draw sodium and fluid into the bowel, causing an increase in stoma/fistula output and sodium loss. Restricting oral fluid intake to 1L per day will reduce the stoma output (this can be reduced to 500mls in patients with very high losses).

Hypertonic fluids contain high sodium concentrations (i.e.> 90mmol/L), have been found to increase absorption of sodium and fluid and therefore help to reduce fluid and electrolyte losses. Double strength Dioralyte (i.e. 2 sachets dissolved in 200mls) is the hypertonic fluid of choice at Hull University Teaching Hospitals NHS Trust. However due to the potassium content it should be used cautiously in patients with renal impairment and avoided in those with hyperkalaemia.

Double strength Dioralyte contains the following:

Sodium 120mmol/L

Potassium 40mmol/L

Glucose 180mmol/L

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Patients are advised to drink 1L of double strength Dioralyte per day to help limit fluid loss and maintain sodium levels. To increase palatability a small amount of sugar free squash can be added to the solution, sipping through a straw may also help. The solution can also be made up with a mixture of ice and water or stored in the fridge to help improve the taste.

For patients with renal impairment, hyperkalaemia, and those unable to tolerate Dioralyte, due to the lack of suitable preparations available, St Mark's Hospital in London has produced a unique solution called "St Mark's Electrolyte Mix". This is a glucose-electrolyte mix which contains 90mmol/L of sodium and no potassium. If supply issues, the patient could make the solution up fresh every day using the following measurements:

- ◆ 20g (six level 5mL spoonfuls) of Glucose powder
- ◆ 2.5g (one heaped 2.5mL spoonful) of Sodium Bicarbonate powder (baking soda) / if the patient cannot tolerate sodium bicarbonate, use Sodium Citrate powder
- ◆ 3.5g (one level 5mL spoonful) of Sodium Chloride (table salt)

This is then dissolved in 1 Litre of tap water, and the patient should drink up to the prescribed volume throughout the day. The solution can be stored at room temperature or in the fridge but it must be discarded 24 hours after mixing and a fresh solution prepared the next day.

Antimotility medication

Antimotility medication reduces intestinal motility and helps to increase absorption of food by slowing gastro-intestinal transit times and is best given 30 minutes before food for optimal effect.

Loperamide (doses above 16mg daily are off label)

Loperamide is the preferred initial choice as it is not sedative or addictive and does not cause fat malabsorption. However combined use of loperamide and codeine has been found to have a synergistic effect. Loperamide passes through the enterohepatic circulation, however this is severely disrupted in patient with short bowel and therefore small bowel transit times may be very rapid. Hence large doses of loperamide may be required (usually up 16mg four times each day, however higher doses have been used in other centres).

Loperamide should initially be started at 4mg four times each day and then gradually titrated up every 48 hours, with a maximum of 50% dose increase per week. For individual doses greater than 8mg, where absorption is a problem or where capsules have been discovered unchanged in stoma/fistula output, melts should be used instead. There have been reports of cardiac events including QT prolongation, torsades de pointes, and cardiac arrest in patients who have taken high or very high doses of loperamide as a drug of abuse or for self-treatment of opioid withdrawal. Consider close monitoring if using high doses of loperamide and patient presents a previous history of cardiac disease.

Codeine phosphate

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Once a patient is on 8mg QDS of loperamide, codeine should be initiated at a dose of 30-60mg four times each day. A combination of codeine and loperamide is often helpful as they act on different receptors in the bowel. Increasing the dosage of codeine beyond 240mg per day has not been associated with an increase in efficacy.

Antisecretory medication

Antisecretory medication reduces gastric acid secretion and therefore helps to reduce fluid loss.

Lansoprazole / Omeprazole / Famotidine/Nizatidine

Stoma pH levels should be maintained above 6. If the pH is less than 6, lansoprazole should be started at a dose of 30mg once daily, this can be increased to 30mg twice daily if needed. If the stoma pH remains low, despite optimal treatment with lansoprazole, consider switching to lansoprazole orodispersible tablets. If this is unsuccessful, a trial of omeprazole dispersible tablets 40mg twice daily should be considered. In patients with very short bowels or where both lansoprazole and omeprazole have been unsuccessful, intravenous pantoprazole 40mg twice daily may be used.

Hypomagnesaemia has been reported in patients treated with proton pump inhibitors, therefore magnesium levels should be monitored regularly. If hypomagnesaemia is a problem, consider use of either famotidine or nizatidine as an alternative.

Trial of octreotide (off label – amber drug)

Octreotide may produce a reduction in stoma or fistula output, however the evidence to support its use is poor. The injections are painful to administer, there is a risk of developing gallstones and both hypoglycaemia and hyperglycaemia may occur. Octreotide can reduce stoma output by 1-2 L/24 hrs.

A trial of 2-3 days of subcutaneous octreotide 50 micrograms twice daily may be worthwhile. Stop treatment after 72 hours if there is no noticeable reduction in output. If improvement is seen, the dose can be titrated gradually up to a maximum of 100micrograms three times each day. For long term treatment this can be changed onto a long acting preparation to aid compliance and prescribing may be considered via shared care or via homecare route.

Magnesium supplementation

Magnesium deficiency is common in patients with high output stomas/fistulae due to reduced area of absorption, sodium depletion and hypoaldosterism. Initial replacement should be given intravenously, however oral magnesium supplementation is often required to maintain levels.

Magnesium is available orally as Magnesium-L-aspartate 10mmol sachets, 1 sachet up to three times a day. Each sachet should be dissolved in 50-200mls of water, tea or orange juice. Higher oral doses can be used (up to 50mmol per day in divided doses) however, oral magnesium is associated with gastrointestinal side effects and stoma/fistula output must be monitored carefully.

Trace elements and vitamins

Patients with high losses are also at risk of trace elements and vitamin deficiencies, therefore these should be monitored regularly (see monitoring section for more information). Common deficiencies seen in this group of patients include selenium, zinc and vitamin B.

- Forceval one capsule once daily is recommended for all patients with a high output stoma. This can be increased to two capsules daily (unlicensed dose) if needed.
- Selenium: Selenium deficiency is common, low levels can be corrected with oral or intravenous selenium 100micrograms three times daily.
- Zinc: Solvazinc one tablet TDS
- Vitamin B12: All patients who have had their terminal ileum removed should have replacement Vitamin B12.
- Vitamin D: Guidance on Vitamin D levels is available below. If levels are below 25 please contact the nutrition team for specialist advice.
<https://www.hey.nhs.uk/wp/wp-content/uploads/2016/03/vitaminD.pdf>

Nutrition

All patients with high output stomas will be referred to a specialist dietician for nutritional assessment as they are likely to have raised energy and protein requirements secondary to associated malabsorption and are likely to require nutritional support measures. In addition absorption of micronutrients and trace elements is likely to be diminished and will need regular assessment.

Patients with a high output stoma should be commenced on a low fibre diet to try and minimise output.

4. Monitoring

Initial monitoring by specialist

- Food chart
- Daily fluid balance (or daily weight if unable to monitor fluid balance)
- Body weight twice weekly
- Stoma pH once weekly
- Full biochemical profile and magnesium – daily initially, then twice weekly once biochemical profile and stoma output have stabilised

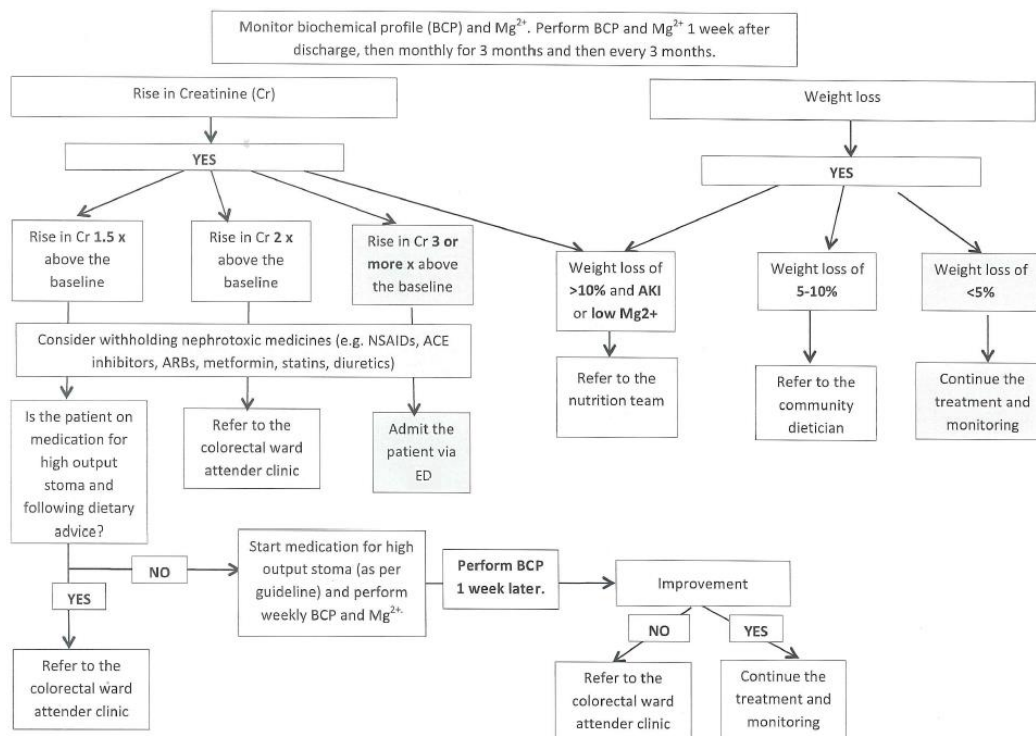
- Baseline trace elements and vitamins – selenium, zinc, copper, iron, ferritin, vitamin A, vitamin B12, Vitamin D, Vitamin E.

On-going monitoring by specialist team (including dietitian)

All patients discharged on home parenteral nutrition or IV fluids will be followed up by the nutrition team

The specialist team will monitor trace elements at least annually and adjust therapy as appropriate.

On-going monitoring by GP



BCP = U&Es, LFTs and calcium.

5. Contact details for Specialist team

Stoma nurses

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