Management of High-Output Stoma

Introduction

Definition

- High output stoma is defined as a stoma with an output of more than 2000ml / 24 hours for three or more consecutive days; causing the patient to become water, sodium and magnesium depleted.
- Patients are considered to have excessive stoma output (ESO), if their stoma output is between 1000ml and 2000ml over 24 hours; putting them at risk of dehydration high and electrolyte losses.
- It is rarely seen if the small bowel is in continuity with more than half the colon.

Incidence

- Common in the first 3 weeks after small bowel stoma formation
- 16% will have stoma output >2000ml/24h
- 73% will resolve spontaneously with supportive care, up to 20% of HOS will remain with a high output until the stoma is reversed
- Remainder require some form of longer-term care.

Be aware of potential for acute post-surgical issues:

- Surgical resection leaving <200cm Small Bowel proximal to stoma (short bowel syndrome)
- Intermittent or partial obstruction (e.g. parastomal hernia)
- Uncontrolled inflammation/sepsis/malnutrition
- Ischaemia
- Undiagnosed or unmasked underlying GI disorder (Coeliac, lactase deficiency, SB diverticula)
- Hypo-adrenal
- Drug therapy (nonsteroidal anti-inflammatory drug *NSAIDs*, Nicorandil, PPI, Metoclopramide, Metformin, withdrawal from antidiarrhoeals or opiates)

Exclude potential causes:

- Intra-abdominal sepsis
- Bowel obstruction
- Enteritis (including c-difficile and salmonella)
- Disease in remaining bowel (including Crohn's or radiation-induced damage)
- Consider it being cause by drug withdrawal (e.g. sudden withdrawal of steroids of anticholinergics
- Consider stopping prokinetics (e.g. laxatives, metoclopramide, domperidone, erythromycin)

Pathway for Management of High-Output Stoma

General Guidelines

- Fluid resuscitate and correct any electrolyte abnormalities
- Investigate and consider underlying cause (see Management of High-Output Stoma)
- Maintain **STRICT** fluid balance (input/output) charts daily and weight twice weekly
- Monitor U+Es daily and magnesium, calcium, phosphate at least twice a week
- Give patients dietary advice and consider dietitian referral if appropriate (see Advice for Patients with High-Output Stoma Patient Information Leaflet at the end of this guideline for more details)

Excessive Stoma Output (ESO) (> 1L output/24 hrs for 3+ days)
Risk of fluid & electrolytes imbalances

- Loperamide 4mg four times a day (30-60 mins before food and drink)
- Lansoprazole fast tab 30mg once daily (or Oro dispersible Omeprazole 40 mg)

If no improvement:
High Output Stoma Advice (>2L output/24 hours for 3 or more days)

- Monitor U &E's daily
- Ensure adequate IV hydration (crystalloids +/- electrolytes)
- Restrict oral hypotonic fluids to 500-1000ml/day e.g. water, tea, juice

If no improvement:

- Loperamide 8mg four times a day
- Lansoprazole 30mg fast tab once daily (or Oro-dispersible Omeprazole 40mg)
- Reassess after 48 to 72 hours

If no improvement:

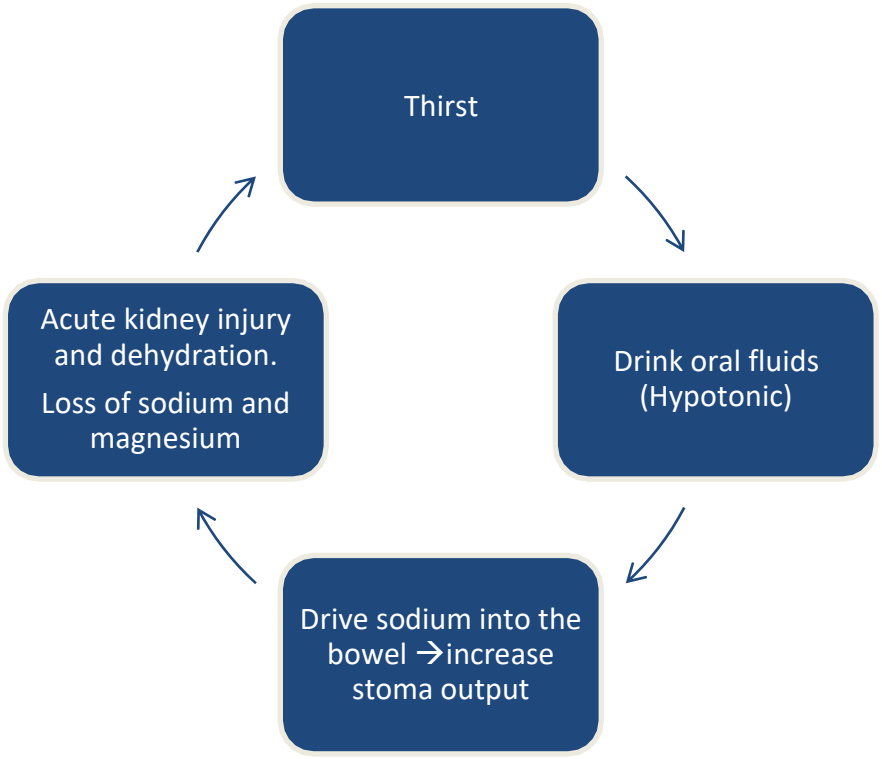
- Recommend patient to Sip 1000 ml St. Marks solution daily
- Increase Loperamide in steps of 4mg, up to 16mg four times a day
- Double dose PPI if stoma contents pH<6

If no improvement:

- Add Codeine Phosphate tablet 30-60mg four times a day (unless contraindicated)
- Reassess after 48 to 72 hours

If no improvement:
Seek further advice – Gastroenterology (consider use of Octreotide)

Mechanism



CAUTION

- **Do not tell the patient to drink as much as they can, they should restrict normal fluids**

- **Do not give the patient hypertonic fluid (e.g. elemental diet) which will increase flow of sodium and water in bowel lumen worsening dehydration and losses.**

- **This pattern will increase electrolytes and water losses, worsen weight loss and malnutrition.**

NOTES

- **Consider checking random urinary Na: <10mmol/l suggests Na depletion**
- **Review medication (stop prokinetics, review if steroids/opiates recently stopped, metformin)**
- **Stool culture to exclude Gastrointestinal Infection**
- **Consider CT abdomen to exclude bowel obstruction/intra-abdominal sepsis**
- **Consider involving stoma team (risk of skin damage)**
- **Normal output for patients with jejunostomy is 600-1200ml/daily**

Magnesium Replacement:

- Oral magnesium salts are poorly absorbed and may increase stoma output
  - ✓ Avoid magnesium hydroxide mixture → potential laxative effect.
  - ✓ Consider oral magnesium at night (stoma function is less and absorption may be improved): Magnesium-L-aspartate 10mmol sachets once daily
  - ✓ If chronic: consider Alfacalcidol (250 Nanograms once daily) and monitor calcium.
- IV magnesium replacement might be required in some cases

Monitoring of Magnesium levels

- Ensure that water and sodium depletion is corrected
- Monitor serum calcium levels

Drug doses and other treatment

(Reassess every 48-72hrs after change in prescription)

1. Diet

- Low fibre diet, add salt to diet
- Consider dietician referral if at high-risk of malnutrition (MUST guidance) or high output from stoma does not settle with best medical management.
- If resection terminal ileum – consider B12 supplements

2. Fluid replacement

- Oral (separate from food by minimum of 30 minutes):
- Restrict normal (hypotonic) fluids to 500-1000ml daily
- 1000ml St Marks solution to be sipped over 24 hours
- IV: Sodium Chloride 0.9% or Plasmalyte (consider electrolyte replacement with crystalloids)

3. NOTE: on rehydration solutions

- St Marks solution: in 1L of water add 20g glucose powder, 3.5g table salt and 2.5g sodium bicarbonate or sodium citrate – this should be sipped throughout the day
- Dioralyte (can be alternative to St Mark's solution and often more palatable): should be used at twice the usual concentration (10 sachets in 1000ml water) to achieve the correct sodium concentration. This can increase potassium intake markedly (40 mmol potassium), therefore careful monitoring can be required. Should avoid use if Acute Kidney Injury and/or hyperkalaemia.

4. Loperamide (capsules up to 8mgs doses then trial loperamide orodispersible tablets)

- At least 30 minutes before meals
- 4mg four times a day can be increased to 8mg four times a day then in increment of 4mgto max 16mg four times a day.
- **Baseline ECG if on loperamide > 4mg four times a day - MHRA Alert: serious cardiac events (such as QT prolongation, torsades de pointes and cardiac arrest) have been reported in association with large overdoses of loperamide (far higher than those used in HOS or short bowel and on intact small bowel) → if QT prolongation, rationalise risk factors (medicines causing prolonged QT and/or metabolic causes), discuss with cardiology and pharmacy to review other potential drug which could exacerbate QTc prolongation.**

5. Proton Pump Inhibitor (PPI)

- Lansoprazole fast tab 30mg once daily
- (*Alternative none-formulary*: Omeprazole (dispersible) 40mg once daily)
- Dose can be adjusted with measurement of pH of stoma effluent. If <6 then increase to twice daily oral dosing or consider intravenous (IV) Omeprazole 40mg up to twice daily.
- Exclude infection including Clostridium Difficile prior to starting PPI

6. Codeine Phosphate

- Codeine Phosphate (tab) 30 to 60mgs four times a day (unless contra-indicated)

7. Octreotide

- Octreotide is rarely used and should **ONLY** be prescribed after discussion with a consultant in the nutrition team. Octreotide is a somatostatin analogue which may reduce the stoma or fistula output by 1-2l/24 hours. However, evidence to support its use are limited and off label for this indication.

- Start dose of 50 micrograms twice a day by a subcutaneous injection.
  - ✓ Treatment should be stopped after 72 hours if no noticeable reduction in output is observed.
  - ✓ If satisfactory reduction in output is observed, then dose can be titrated up to 100 micrograms three times a day according to response.
  - ✓ If discharge on Octreotide, the GP should take over prescription with the nutrition team consultant supervision

- Monitoring: painful injection, watch for hyperglycaemia / hypoglycaemia

- Common side effects: nausea, diarrhoea, abdominal pain, and gallstones

Advice for your high output stoma

Information for patients

This leaflet provides advice on ways to reduce your stoma output.

What is a high stoma output?

If your stoma produces more than 1 litre of fluid per day, then it is considered to have a high output and you may be at risk of getting dehydrated. As well as obtaining nutrients from food, the bowel has an important role in absorbing fluid and electrolytes (salts). Most fluid is absorbed in the lower bowel. If this has been removed or is disconnected from the upper bowel by a stoma, you are more likely to experience a high output from your stoma. A high stoma output can lead to poor absorption of nutrients, salts and fluids, which can lead to dehydration and weight loss.

Depending on the length of your remaining bowel, your absorption may get better over time and your high output may decrease. However, there are several things that can be done to help this.

Reducing your stoma output

Your stoma output may be reduced by:

1. Drinking less ordinary fluid and replacing this with an oral rehydration solution such as St Mark's
2. Increasing your salt intake
3. Reducing your fibre intake
4. Taking medication to reduce your stoma output.

Fluids

Drinking too much ordinary fluid (e.g. tea, coffee, water, squash, and fruit juice) will increase your stoma output and make you become thirsty and dehydrated. You may be advised to limit your consumption of ordinary fluid to 500-1000mls per day. Your health care team will advise you on this. You may be advised to take a rehydration solution such as St. Mark's solution. This is high in salt and helps your body absorb fluid, therefore helping to reduce your stoma output and keeping you hydrated.

St Mark's Electrolyte Mix- oral rehydration solution

If you need to get your St. Mark's solution prescribed, show this leaflet to your GP or doctor.

How to make the electrolyte mix:

- Six level 5ml spoons of glucose (20g)
- One level 5ml spoon of sodium chloride (table salt)(3.5g)
- One heaped 2.5ml spoon of sodium bicarbonate (baking soda)(2.5g)
- Mix the above ingredients in 1 litre (1000 ml) of tap water. You will need to make up the solution fresh each day.

Tips to help you take your electrolyte mix

- Electrolyte mix is best served chilled
- It can be frozen and taken as a slush
- Try drinking it through a straw
- You may wish to add a **small amount** of squash, fruit juice or cordial to improve the taste. This is best added while making up the solution rather than adding to each glass so that the sodium (salt) content remains high
- Add fresh lemon or lime juice.

When it is hot we sweat and lose salt and fluid from the body. In this situation people with short bowel are more likely to get dehydrated and you may find you need to drink more oral rehydration solution to replace these losses.

Tips to help you stick to your fluid restriction:

- Sip all fluids, including your oral rehydration solution, slowly throughout the day
- Use smaller cups and glasses
- Suck boiled sweets or mints
- Suck ice cubes or ice lollies
- Try to keep busy so you are not thinking about feeling thirsty.

Salt

Each day you will lose salt from your stoma and it is important to try to replace this loss by following a diet high in salt, as follows:

1. Sprinkle a little salt on your meals: one half teaspoon- one teaspoon per day
2. Try cooking with salt
3. Increase your intake of the following salty foods: cheese, bacon, ham, smoked fish, fish canned in brine (tuna, sardines, salmon), meat and fish pastes, Oxo, Bovril, Marmite, salted crisps, savoury or salty biscuits.

Fibre

Foods high in fibre are often difficult to digest and can increase your stoma output. Lower fibre foods may help to decrease your stoma output. You can limit your fibre intake by:

1. Having white-based cereal products such as white bread, white rice, white pasta, white breakfast cereals such as corn flakes and Rice Krispies
2. Have small portions of fruit and vegetables and remove skins, stalks, seeds, and pips
3. Avoid nuts and dried fruit.

Medications

Certain medications can be used to slow down the bowel and aid absorption:

Loperamide- this slows down the action of the bowel, helping more fluid, salt and nutrients to be absorbed. It is usually taken four times per day and needs to be taken 30-60 minutes before eating.

Codeine phosphate- this also slows down the bowel and is often used in conjunction with Loperamide. It should also be taken 30-60 minutes before eating.

Omeprazole or **Lansoprazole**- these drugs reduce the amount of acid produced by the stomach and hence reduce stoma output.