St. Michael's
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High Fecal Output Management

Nutrition & Pharmaceutical Approaches

- A Pocket Reference -
16 CCN

High fecal output occurs when there is insufficient bowel (or insufficient working bowel) to maintain fluid and/or nutritional requirements.
While individual patient experiences may differ, this typically manifests as greater than 1500ml of stool loss/24 hours.

Guiding Principles

- Patients will be supported with IV hydration and/or nutritional supplementation while high fecal outputs are managed
- Referral to Dietitians and Pharmacists are required
- Pharmaceutical and dietary interventions should occur simultaneously
- All interventions should be tried for a minimum of 72 hours before moving onto the next step
- Individualized care plans and patient engagement are critical to success

Goals of Care

- Provide adequate protein, energy, vitamins, minerals, fluids and electrolytes to maintain or improve nutritional status
- Decrease or eliminate the need for parenteral nutrition or intravenous fluids when possible
- Implement appropriate drug therapy
- Reduce fecal output to less than 1500ml daily
- Maintain minimum of 1 litre urine output daily
- Re-establish activities of daily living/usual routines

Nutrition Interventions: Patients with Ostomies/Fistulas

Step I
- Ostomy diet[7]
- No caffeine[12]
- 6 meals per day[3]
- Gatorade 2 (G2)®

Step II - Add
- Low osmotic diet[12], low lactose[8]

Step III - Add
- 1 gram of NaCl with 250ml of low simple sugar beverages[5]
- Eliminate all other fluids
- Add 3 salt packages to meal trays (1g NaCl)
- Separate liquids from solid food by 45 minutes[12]

Step IV
- Change all liquids to: Gastrolyte® or SMH Oral electrolyte solution[3]

Nutrition Interventions: Patients with Colon

Step I
- Low roughage, high bulk diet[11]
- No caffeine[12]
- 6 meals per day[3]
- Gatorade 2 (G2)®

Step II - Add
- Low osmotic diet[12], low lactose[8]

Step III - Add
- 1 gram of NaCl with 250ml of low simple sugar beverages[5] up to 6g NaCl/d
- Eliminate all other fluids
- Add 3 salt packages to meal trays (1g NaCl)
- Separate liquids from solid food by 45 minutes[12]

Step IV
- Change all liquids to: Gastrolyte® or SMH Oral electrolyte solution[5]

Pharmaceutical Interventions

Step I
- All patients with extensive small bowel resection should be on PPI[1,5,10]
- Initiate as oral tablets; if there is a concern with absorption, change to IV
- SMH formulary: pantoprazole, esomeprazole
- Review all liquid medications to avoid sugar alcohols

Step II - Add
- Imodium® (loperamide) 4mg po tid ac[1,4,9] & hs
- For patients with a colon, psyllium 1 tsp bid (titrate dose to effect max. 1 tbsp bid)[2,12]

Step III - Add
- Lomotil® (diphenoxylate/atropine) 1 tab po tid ac & hs

Step IV
- Increase Lomotil® to 2 tabs tid ac & hs AND increase loperamide[9,12] to 8mg tid ac & hs

Step V
- Initiate octreotide[10] 25mcg sc bid ac

Step VI
- Increase octreotide to 50mcg sc tid ac

Step VII
- Increase octreotide to 100mcg sc tid ac

NOTE
- For patients with bile acid diarrhea AND those with <100cm of SB resected AND an intact colon, consider cholestyramine[6,7,12,13] 4 g po daily

Helpful Hints - Nutrition

Diet Definitions

Ostomy
- low in insoluble fibre (e.g. avoids wheat bran, fruit skins, raw vegetables)
- higher in some soluble fibre (e.g. includes oatmeal, unsweetened applesauce)
- low in gas forming foods (e.g. avoids broccoli, cauliflower)

Low Osmotic Diet
- low in simple sugars (e.g. avoids sugar, fruit juices)
- low in insoluble, high in soluble fibre
- limits quantity of some liquids (e.g. milk)

Low Lactose
- Provides lactose free milk
- Allows yogurt, cheese, pudding and other smaller quantities of lactose

Low Roughage, High Bulk
- low in insoluble fibre (e.g. avoids wheat bran, fruit skins, raw vegetables)
- higher in some soluble fibre (e.g. includes oatmeal, unsweetened applesauce)

Low Simple Sugar Beverages
- e.g. ORS (oral replacement solution), G2®, diet drinks, water, herbal tea
- 3 packages of salt added to meal trays provides an additional 1 g of sodium chloride per day

Helpful Hints- Pharmacy

- Avoid liquid drug products (eg, syrups): sweeteners (sorbitol) may exacerbate outputs
- Administer medications 30 min before meals to increase absorption
- Imodium is the preferred opioid for slowing outputs
- Lomotil is preferred to Codeine to slow output
- Octreotide is more beneficial in net secretors: those with outputs > 3 L/24 h[10]
- Oral PPI's require >50 cm of small bowel for absorption
- Dilute psyllium in 1 cup of water
  - Dose of psyllium should be titrated to effect (untill a thickening/gelling like effect is seen in the ostomy/fistula output)
- If trialing cholestyramine, other medications should be taken 1 h before or 4 h after or as great an interval as possible
- Once a patients outputs are under control, it may be advisable to trial scaling back or reducing the dose of anti-diarrheal medicatons
- Once stable on the appropriate dose of octreotide you may consider converting to a long acting product.

References

1. Baker, M.L., Williams, R.N., Nightingale, J.M.D. Causes and management of a high output stoma. Colorectal Diseases. 2011; 13(2):191-7.
2. Bliss, D., Jung, H., Savik, K., Lowry, A., LeMoine, M., Jensen, L., Werner, C., Schaffer, K. Supplementation with dietary fiber improves fecal incontinence. Nursing Research. 2001; 50(4):203-213.
3. Byrne, T., Veglia, L., Camelio, M., Cox, S., Anderson, S., Wilson, J., Bennett,H. Beyond the prescription: optimizing the diet of patients with short bowel syndrome. Nutrition in Clinical Practice. 2000; 15:306-311.
4. Dibaise, J.K. New developments in the management of short bowel syndrome. US Gastrolenterology & Hepatology Review. 2008; 4(1):56-58.
5. Jeejeebhoy, K. Short bowel syndrome: a nutritional and medical approach. Canadian Medical Association Journal. 2002; 166(10): 1297-1302.
6. Jeejeebhoy, K. Management of short bowel syndrome: avoidance of tpn. Gastroenterology. 2006; 130(2):S60-S66.
7. Matarese, L., O'Keefe, S., Kandil, H., Bond, G., Costa, G, Abu-Elmagd, K. Short bowel syndrome: clinical guidelines for nutrition management. Nutrition in Clinical Practice. 2005; 20:493-502.
8. Marteau, P., Messing, B. Arrigoni, E., Briet, F., Flourie, B., Morin, MC, Rambaud, JC. Do Patients with short bowel syndrome need a lactose-free diet? Nutrition. 1997; 13:13-16.
9. Nightingale, J. Management of patients with a short bowel. World Journal of Gastroenterology. 2001; 7(6):741-751.
10. Nightingale, J., Woodward, J. Guidelines for management of patients with short bowel. Gut. 2006; 55(Supplement IV): iv1-iv12.
11. Nordgaard, I., Hansen,BS., Mortensen, PB. Colon as a digestive organ in patients with short bowel. Lancet. 1994; 343:373-376.
12. Parrish, C.R. The clinician's guide to short bowel syndrome. Practical Gastroenterology. 2005; 31:67-106.
13. Vanderhoof, J.A. and Pauley-Hunter R.J. Management of SBS in adults. In: UpTo Date, section editor Thomas Lamont, MD, deputy editor Shilpa Grover MD, UpToDate, Waltham, MA, accessed date, July 26, 2012.

NOTES:

Acknowledgements:
Carol Rees Parrish MS, RD for her review
St. Michael's Hospital SOAPEE Grant