

## **GASTROINTESTINAL DISORDERS**

### **Symptoms**

- many renal patients experience reflux, peptic ulcer disease, motility disorders, or nausea.

### **Causes:**

- Many renal failure patients are diabetic. Diabetic patients commonly experience gastroparesis, feeling nauseated, feeling full after very small amounts (early satiety), and heartburn due to reflux.
- Medications such as Calcium, Aluminum phosphate binders, Diavite, and Iron may cause nausea or reflux.
- Prednisone and other immunosuppressants such as cyclophosphamide, that often are used to control or to try to slow the progression of autoimmune renal diseases such as lupus, may cause nausea.
- Uremia of renal failure and infusion of peritoneal dialysis fluid can also cause nausea or the sensation of fullness.
- Constipation is common and may be due to fluid restriction, restriction of fruits and fruit juices due to potassium content, iron supplements, calcium supplements, aluminum as a phosphate binder and some antihypertensives.
- Neuropathy of uremia can lead to disordered motility: constipation +/- diarrhea.

### **Importance of Management:**

- Large scale studies showed that poor nutrition is related to morbidity and mortality in renal failure patients. Thus, it is important that patients are able to ingest the necessary quantities of food to maintain or improve nutrition. Prevention and treatment of constipation is especially important to maintain good peritoneal dialysis inflow and outflow.

### **Medical Management:**

- It is important to determine the cause or source of the problem as the treatment is based on the cause.
- If medications are causing nausea, taking them with some food may help although this will decrease iron absorption. Diavite may be taken with food and phosphate binders should be taken with food.
- If patients experience nausea, often antiemetics such as dimenhydrinate, prochlorperazine, or haloperidol can be used as needed for control.

- More often the problem is one of “fullness” for which a prokinetic agent is indicated, or reflux for which ranitidine is indicated, to avoid the interstitial nephritis and scr lab interaction of cimetidine. Omeprazole is 1<sup>st</sup> line drug for established reflux.
- Occasional use of aluminum hydroxide as an antacid is okay.
- Metoclopramide is the drug of first choice for adults although patients may experience extrapyramidal symptoms (EPS) at higher doses. A starting dose of 5 mg QID is reasonable. May increase to 20 mg po QID, monitor for adverse effects.
- Domperidone can be used if EPS occurs with metoclopramide or if the patient has not responded. Doses up to 40 mg QID should be tried before moving to cisapride.
- Cisapride is the first line agent for children because of the high incidence of metoclopramide induced EPS in pediatrics.
- Cisapride should be reserved as a third line agent in adults due to the possible toxicity in renal failure patients that could lead to Torsades de Pointes arrhythmia. This is a life threatening arrhythmia characterized by a prolonged QTc interval, often precipitated by hypokalemia or hypomagnesemia or very high drug levels.
- This arrhythmia has been seen when interacting medications are given that lead to an increase in the cisapride levels because the drug is metabolized by the cytochrome P450 enzyme system. Although cisapride is not significantly renally cleared, the company has labelled it as contraindicated in renal failure. This is likely due to a presumed decrease in hepatic elimination in renal failure.
- In practice, the maximum recommended cisapride dose for renal failure patients is 10 mg po QID.
- For this reason, guidelines have been proposed as reasonable monitoring for patients requiring cisapride. These include:
  1. All renal patients currently receiving cisapride should have an EKG to determine QTc interval.
  2. All patients with QTc > 450 msec should be assessed clinically and the dosage of cisapride should be decreased if possible. In patients with QTc > 500 msec, discontinuation of cisapride should be considered if dosage reduction was not effective.
  3. Baseline EKG should be obtained before initiating cisapride. EKG should be yearly if normal QTc, q6months if QTc > 450msec and consider monthly or q2month if QTc> 500 msec.

4. Cisapride must be discontinued if any of the following medications are given concurrently (absolute contraindications).

Fluconazole	Ketoconazole
Itraconazole	Erythromycin
Clarithromycin	Ritonavir
Indinavir	Nefazadone

Patients on cisapride should be given a wallet card informing them to not combine cisapride with these medications. Patients should be advised to inform pharmacists and physicians that they are receiving cisapride.

- Constipation can be treated in some patients with fruit compotes containing prunes or small amounts of prune juice. It is important that these patients consult the renal dietitian and that they are following closely for potassium levels.
- Constipation is more commonly treated by using docusate sodium as a stool softener to prevent constipation if fluid restricted or in conjunction with a laxative. Docusate will not generally cause diarrhea and should be used regularly to prevent problems. It will not act immediately. Docusate is a soap-like chemical that mixes with the bowel contents and makes it easier to pass stool.
- Laxatives of choice are generally osmotic laxatives such as sorbitol or lactulose because they are believed to be less likely to cause “lazy bowel” as they are not really stimulating contractions, but rather just pulling water into the bowel which will in turn stimulate contraction due to volume.
- Patient preference is often important with bowel regimens and tablets may be preferred. Senna glycosides are recommended if a stimulant laxative is needed.
- Bulk forming laxatives are generally avoided due to the need to ingest large quantities of fluid to make them effective. Renal failure patients are often fluid restricted. The use of bulk-forming laxatives without sufficient fluid will usually lead to constipation.
- Avoid magnesium containing laxatives and antacids. Magnesium accumulates in renal failure patients and can cause CNS adverse effects.
- Occasional use of glycerin suppositories or fleet enemas is okay.
- It is uncommon for renal failure patients to experience diarrhea, however, if necessary, loperamide or diphenoxylate are safe to use if infection has been ruled out as the cause of the diarrhea.

## Gastrointestinal Disorders: Useful References

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