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ORIGINAL ARTICLE

Prevalence of Gastrointestinal Symptoms in Patients with Chronic Renal Failure

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ABSTRACT:
Introduction: Gastrointestinal (GI) complications are well known to occur in patients with renal disease. A proper GI assessment is of paramount importance for a prospective renal transplant candidate as well as for patients having minor GI symptoms when they are on maintenance hemodialysis or conservative management of chronic renal failure (CRF). **Aim**: To assess the prevalence of GI symptoms in patients with CRF. **Material and methods**: A total of 60 chronic kidney disease (CKD) patients were included in the study. All these patients were evaluated on the basis of clinical data which were collected from patient's medical records. Mucosal biopsies from the patients were examined at two levels using hematoxylin and eosin stain. Additionally, Giemsa stain was used in all gastric biopsies for the identification of *Helicobacter pylori*. **Results**: The majority of patients belonged to 30-60 years' age group. Type 2 diabetes mellitus and hypertension were the most common comorbidity. A total of 41 (68.3%) patients presented with GI symptoms, which included dyspepsia, vomiting, dysphagia, chronic anemia and melena, and underwent esophagogastroduodenoscopy (OGD) followed by biopsy. Most common finding on biopsy was acute inflammation of esophageal mucosa with ulceration in 11 cases (18.33%). **Conclusion**: We conclude that the prevalence of GI symptoms is high in patients with CRF. Type 2 diabetes mellitus and hypertension were the most common comorbidity. Ulcerative and erosive esophagitis were the commonest findings in our study.
Key words: chronic renal failure, gastrointestinal complications, malnutrition, esophagitis

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INTRODUCTION:

Gastrointestinal (GI) complications are well known to occur in patients with renal disease. It was way back in 1934 when Jaffe and Laing reported the GI findings in 136 autopsy cases who had uremia.[1] Chronic kidney disease (CKD) patients as well as renal allograft recipients form a significant proportion of patients attending endoscopy clinic. The pathogenesis of malnutrition is possibly multi-factorial. Several factors seem to contribute to malnutrition in ESRD patients: inadequate intake of protein and calories, metabolic acidosis. The GI complications in patients with chronic kidney disease includes retention of toxins and toxic products (endogenous and exogenous), with alteration of the homeostasis of the extracellular environment. The GI manifestations are frequently due to the iatrogenic factors, the influence of the underlying disease that led to CKD, the higher prevalence of anxiety disorders, depression and irritable bowel syndrome, factors related to treatment and type of renal replacement therapy, alteration in the microbiota and persistent trans mural inflammation of the intestinal mucosa. Because of these symptoms, function of the digestive tract is affected along with many organs and systems, which can present not only a series of symptoms but also complications, which in some cases may be asymptomatic, but which manage to constitute a risk for possible complications.[2-3]

A thorough GI assessment is of utmost importance either for a prospective renal transplantation candidate or for patients with even minor GI symptoms when they are on maintenance hemodialysis or conservative management of CRF**.** Limited data are available on the burden of GI symptoms in patients with chronic renal failure (CRF), although some previous studies have shown a high prevalence of GI symptoms in these patients.[4-6] Therefore, the present study was undertaken to assess the prevalence of GI symptoms in patients with CRF.

MATERIAL AND METHODS:

A total number of 60 CKD patients were included in our study. Those patients who had irreversible reduction in kidney function, renal allograft recipients, and in whom an endoscopic biopsy was performed and were in the age range of 20-80 years were included in the study, whereas the patients of

CKD associated with diabetes mellitus, chronic usage of NSAIDS, analgesics or with a previous history of acute peptic disease were excluded from this study. All these patients with the above characteristics were evaluated based on clinical data which were collected from patients' medical records and particular emphasis was given on presenting symptoms, serum creatinine level at the time of presentation, comorbid conditions, recent history of intake of any gastric irritant drugs such as anti-inflammatory drugs, time interval between commencement of immunosuppressants and time of presentation, endoscopic findings, treatment and outcome. Mucosal biopsies from the patients were examined at two levels using hematoxylin and eosin stain. Additionally, Giemsa stain was used in all gastric biopsies for the identification of *Helicobacter pylori*.

RESULTS:

The results of this study showed that a total 60 patients aged 20 to 80 years were analysed with majority in the range of 30-60 years. Out of these, 26 patients were on maintenance hemodialysis. Average serum creatinine level in nondialyzed patients at the time of biopsy was 3.2 mg/dL. Four of these patients were seropositive for hepatitis C infection. Type 2 diabetes mellitus and hypertension were the most common comorbidity. Diabetes mellitus was present in 38 and hypertension in 46 patients; other comorbid conditions with lesser frequency as observed were ischemic heart disease in 6 and hypothyroidism in 4 patients.

Gastrointestinal symptoms:

A total of 41 patients presented with GI symptoms, which included dyspepsia, vomiting, dysphagia, chronic anemia and melena, and underwent esophagogastroduodenoscopy (OGD) evaluation followed by biopsy. Upper GI symptoms were commonly seen while lower GI symptoms were comparatively seen in fewer patient mainly in the form of chronic diarrhoea and bleeding per rectum, for which they underwent colonoscopic biopsies.

Biopsy findings:

Most common finding on biopsy was acute inflammation of esophageal mucosa with ulceration in 11 cases (18.33%). Other histological features observed are tabulated in table 2. On follow up period of 3 months, it was observed that 18 patients expired.

DISCUSSION:

GI complications are known to commonly occur in patients with renal failure. Both uremia and dialysis have been found to increase the risk of lesions in the GI tract. After renal transplantation also gastrointestinal manifestations are common, causing morbidity in these patients. In our study, the age of patients ranged from 20 to 80 years, with majority, 45% of the subjects in the age group varying from 30 to 60 years. In a study conducted by Varma et al[7] the age of the patients ranged from 17 to 70 years and in a study by Esfahani et al[8], patients were between 4 and 18 years. Out of the total cases, 26 of our patients were on maintenance hemodialysis. Average serum creatinine level in nondialyzed patients at the time of biopsy was 3.2 mg/dL. Four of these patients were seropositive for hepatitis C infection. In our study, diarrhea was commonly reported in all the groups of patients with CRF. The reason for the high prevalence of diarrhea is unknown. Nausea and vomiting are common in uremia and it has been suggested that delayed gastric emptying is part of the pathogenesis behind these symptoms. Previous authors like Van Vlem B et al[6] and Ross EA et al[9] have shown conflicting results, some demonstrating delayed gastric emptying although others have not been able to confirm this and have reported normal gastric emptying in these patients.[10]

TABLE 1: VARIOUS HISTOLOGICAL FINDINGS OBSERVED FROM BIOPSY REPORTS OF THE PATIENTS

Histological finding	Number of patients	Percentage
Acute inflammation of esophageal mucosa with ulceration	11	18.33%
Acute inflammation and ulceration of esophageal mucosa along with association of herpes virus infection	8	13.3%
Acute inflammation of mucosa associated with edema and hyperaemia with erosions and smooth muscle involvement	8	13.3%
Inflammation of duodenal mucosa with or without ulceration	5	8.3%
Acute and chronic gastric mucosal inflammation with association of *H. pylori* infection	4	6.6%
Ulceration and necrosis of colonic mucosa along with edema and hemorrhage	3	5%
Mild inflammation of colon mucosa with non-specific findings	2	3.3%

Previous authors have reported that the most frequent cause of diarrhea in renal transplant patients is viral gastroenteritis. This is a self-limiting condition seen in patients on immunosuppression, especially with Mycophenolate. Pseudomembranous enterocolitis can occur in up to 50% of patients receiving antibiotics for the treatment of other bacteria and parasites. In elderly transplanted patients and in those with polycystic kidney disease, the frequency of caecal ulcerations, diverticular disease, and vascular insufficiency is increased. Finally, the gastrointestinal tract is also a site of onset of post-transplant lymphoproliferative disorders.[11,12]

In the present study, predominant biopsy findings included ulcerative esophagitis, ulcerative esophagitis due to viral herpetic infection, erosive gastritis and duodenitis/duodenal ulcerations. In a study conducted by Varma et al,[7] gastritis was the major lesion. Other lesions included duodenitis in 14%, gastroduodenitis in 20%, telangiectasia in 4.3%, and peptic ulcer in 6.5%. In the study by Esfahani,[8] gastritis again was the predominant lesion accounting for 60.8%. Other lesions included duodenitis in 13%, gastroduodenitis in 7.2%, peptic ulcer and esophagogastritis in 4.3% and 3% respectively.

Malnutrition is common in patients with CRF and strongly correlated with increased morbidity and mortality[13,14]. Various factors such as medications, metabolic acidosis, uremic toxins, psychosocial factors, old age and inadequate dialysis have been proposed to be contributing to malnutrition in patients with CRF. Thus the burden of illness with increased inflammation may contribute to decreased food intake leading to poor nutritional status in some CRF patients.

We observed GI symptoms in 41 cases (68.3%) while previous studies have shown that GI symptoms are common in dialysis patients, with values ranging from 32 to 79% among these patients.[4-6] In our study, the duration of dialysis did not influence the prevalence of GI symptoms. In yet another study by Esfahani,[8] it was quoted that duration of dialysis did not have any influence on prevalence of GI symptoms or lesions.

In a large study of 474 subjects Khedmat et al found that erosive gastritis is more common in the uremic subjects than those who were renal transplant (RT) recipients. Duodenal ulcer in the uremic patients was also more common than that in the RT recipients.[15]

CONCLUSION:

We conclude that the prevalence of gastrointestinal symptoms is high in patients with CRF. Type 2 diabetes mellitus and hypertension were most common comorbid conditions. Ulcerative esophagitis and erosive esophagitis are commonest findings in our study. Further studies on pathophysiology of GI symptoms are required.

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