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A STUDY OF UPPER GASTRO INTESTINAL ENDOSCOPIC EVALUATION IN CHRONIC RENAL FAILURE PATIENTS

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ABSTRACT

Introduction: Patients with chronic kidney disease (CKD) present with various clinical gastrointestinal (GI) symptoms and abnormalities in the GI tract. Studies on CKD patients are very few and there is not much Indian study to evaluate the frequency of these symptoms. This study was planned to our aim of this study is to evaluate the incidence of upper GI tract involvement in chronic renal failure patients. Also to find out any GI symptomatology in chronic renal failure patients with the upper gastro intestinal mucosal changes. **Material and methods**: The present study included 35 patients. In all patients a detailed history of the illness was taken with special reference to the gastro intestinal symptoms and subjected to a complete clinical examination. Blood urea, serum creatinine, creatinine clearance were measured and abdominal ultra-sonogram was performed. The patients were subjected to oesophago-gastro duodenoscopy. Endoscopic findings in oesophagus, stomach and duodenum were recorded. **Results:** In this prospective study, 26 were males and 9 were females. The age of the patients varied from 20 years to 70 years. The duration of illness varied from 3 months to 6 years. Their blood urea levels varied from 73% mgs to 196% mg. Serum creatinine ranged from 3.4 to 15.4 mgs. Their creatinine clearance from 2.8 ml to 29 ml. Nausea, vomiting, and anorexia were the most common symptoms; and erosive gastritis wes the most common endoscopic findings in CKD patients. **Conclusion:** Patients of chronic kidney disease frequently develop different GI symptoms and GI lesions. Persistence of endoscopic abnormality suggests that the improvement was not complete due to continued presence of uraemic toxins in non-dialysed patients. Early detection will be helpful in treating and improving the health status of the patients by reducing morbidity and mortality.

KEYWORDS: Chronic kidney disease, haemodialysis, GI symptoms, GI endoscopy.

INTRODUCTION

Patients diagnosed with chronic kidney disease mostly suffer from co-morbidities like diabetes and cardiovascular diseases. The most common, non-renal, chronic disorders in patients with chronic kidney disease (CKD) are GI disorders, which necessitates the need to understand the GI disorders accompanying CKD including those receiving renal replacement therapy. Some GI conditions are due to uraemia or the effects of renal replacement therapy or underlying disease or medications.[1] CKD is commonly associated with several abnormalities in the gastrointestinal tract involving all its segments. The development of these complications is thought to be multifactorial. Most GI symptoms are readily reversed by haemodialysis.[1] However, with the advent of haemodialysis, the nature and distribution of disease appears to be changing, probably because these patients survive longer.[2] The patients on maintenance hemodialysis may bleed from the mucosal lesions with the use of heparin in the dialysis program. Even in asymptomatic patients of CKD on maintenance hemodialysis, researchers have shown that the GI blood loss is much more than in patients not on hemodialysis. Hence, a proper GI evaluation is of paramount importance either for a prospective renal transplantation candidate or those patients having even minor GI symptoms when they are on maintenance hemodialysis or conservative management for CKD.

Structural and functional changes in the gastroduodenal mucosa in patients with CKD has been studied by many investigators before and after invent of dialysis which included gastrin levels, barium meal examination, endoscopic appearance and histological changes. Earlier reports based on barium meal studies suggested that there is an increased incidence of peptic ulcer in these patients. Whereas most of the earlier studies described increase in gastric acid secretion and radiologically demonstrable peptic ulcer disease, recent studies have documented a higher incidence of gastroduodenal inflammatory changes. The present study done at Thanjavur Medical College Hospital is about the "upper gastrointestinal" endoscopic changes" in upper gastro intestinal mucosa in patients with chronic renal failure

who underwent peritoneal dialysis/ haemodialysis as well as those who have not undergone dialysis or transplant. Hence our aim of this study is to evaluate the incidence of upper GI tract involvement in chronic renal failure patients. Also to find out any GI symptomatology in chronic renal failure patients with the upper gastro intestinal mucosal changes.

MATERIALS AND METHODOLOGY

The study was conducted in patients of chronic renal failure admitted in Thanjavur Medical College Hospital during the period November 1996 to April 1997.

The following criteria were used in selection of cases.

- Patients who were symptomatic for 3 months or more.
- Patients with serum creatinine more than 3% mg and creatinine clearance less than 30 ml /minute.
- Patients with bilateral contracted kidneys on abdominal ultrasound with poor cortico-medullary differentiation and type II or III parenchymal changes.
- Patients with established chronic renal failure on conservative therapy (or) dialysis irrespective of aetiology.

Patients with history of ingestion of aspirin, corticosteroids, non-steroidal anti-inflammatory drugs. Known cases of acid peptic disease and alcoholics and smokers were excluded. Also patients with poor cardiovascular and pulmonary function and patients who underwent renal transplant were excluded.

In all patients a detailed history of the illness was taken with special reference to the gastro intestinal symptoms and subjected to a complete clinical examination. Besides routine investigations, blood urea, serum creatinine, creatinine clearance were measured and abdominal ultra-sonogram was performed. The patients were subjected to oesophago-gastro duodenoscopy using Olympus GIF Q10scope after overnight fasting and after getting consent from the patients. Endoscopic findings in oesophagus, stomach and duodenum were recorded.

The following criteria were used for the endoscopic diagnosis of various abnormalities.

Oesophagus: Oesophagitis was diagnosed endoscopically by the presence of friability, (ie bleeding in response to gentle or minimal contact with the tip of the endoscope or closed biopsy forceps), erosions with exudate, or frank ulceration. The erosions may be linear or oval to round with bright real margins. Hyperemia and erythemia alone were not taken as reliable criteria for diagnosis.

Stomach and Duodenum Erosions: Endoscopically the fully developed erosion is characterised by a central depression with or without a necrotic floor, a red rim and prominent reaction in the surrounding mucosa. They are usually less than 0.5 mm in diameter.

Ulcer: Mucosal discontinuity more than 0.5 mm in diameter are considered as ulcers. It is not possible to find out the depth of the lesion. Healed ulcers were diagnosed by the absence of surrounding acute inflammatory changes and by mucosal puckering.

RESULTS

Of the 35 patients in our study 26 were males and 9 were females. The age of the patients varied from 20 years to 70 years. The duration of illness varied from 3 months to 6 years. Their blood urea levels varied from 73% mgs to 196% mg. Serum creatinine ranged from 3.4 to 15.4 mgs. Their creatinine clearance from 2.8 ml to 29 ml/mt. The complete haemogram including platelet count done in all patients revealed only anaemia, otherwise normal.

Among the underlying primary diseases chronic glomerulonephritis seen in 15 cases followed by hypertension (Table 1). Both Hypertension and chronic glomerulonephritis were present in 15 (43%) patients. Of the 35 cases we studied 25 were on conservative line of management and 10 patients underwent peritoneal or haemodialysis.

Table 1: Primary cause aetiology.

CKD ETIOLOGY	
PRIMARY CAUSE	**NO OF CASES**
CHRONIC GLOMERULONEPHRITIS	15
HYPERTENSION	12
DIABETIC NEPHROPATHY	6
OBSTRUCTIVE NEPHROPATHY	1
CHRONIC INTERSTITIAL NEPHRITIS	1

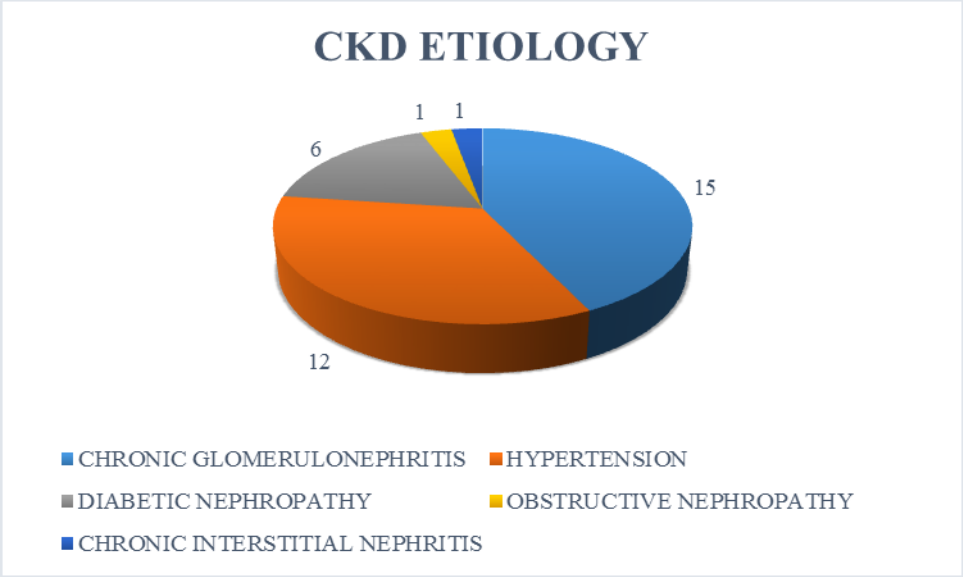

Chart 1: Primary cause aetiology.

Next we evaluated the upper GI endoscopy findings which revealed mucosal abnormalities in 12 (34%) of the 35 cases. The remaining 23 cases showed no changes endoscopically. The findings were depicted in table 2.

Table 2: Oesophago gastro duodenoscopy findings.

OGD SCOPE FINDINGS		
OESOPHAGUS	PALE MUCOSA	ALL CASES
	MONILIAL OESOPHAGITIS	2
STOMACH	PUPURIC SPOTS IN ANTRUM	1
	EROSIVE GASTRITIS	3
	GASTRIC ULCER	NIL
DUODENUM	EROSIVE DUODENITIS	3
	DUODENAL ULCER	3

The abnormalities in the oesophagus include Monilial oesophagitis in 2 (6%) cases. Normal oesophageal mucosa was seen in 33 (94%) The abnormalities in the stomach include- Pale mucosa seen in most of the cases whereas petechiae in 1 case (3%), Antral gastritis in 2 (6%) cases Erosive gastritis involving the body of stomach in one case (3%). Similarly gastric ulcer seen in none and normal gastric mucosa in 31 cases. Coming to duodenum- duodenal ulcer is seen in 3 cases (9%), the ulcer base showed bleeding vessel in 1 patient among them and Erosive duodenitis in 3 cases (9%). Also out of oesophagus, stomach and duodenum, at least 2 sites were involved in 2 patients. None showed involvement of all the three sites. Oesophagus alone was involved in 2 cases (6%) Stomach alone in 3 cases (9%) Duodenum alone in 5 cases (14%). Stomach and duodenum in 2 cases (6%) No endoscopic changes were seen in 23 out of 35 cases in our study. Nausea and anorexia where the most common symptoms seen followed by vomiting (Table 3).

Table 3: Symptomatology pattern.

GI SYMPTOMS	NO OF PATIENTS	PERCENTAGE
NAUSEA	12	34%
VOMITTING	6	17%
FULLNESS AFTER MEALS	5	14%
ANOREXIA	12	34%
HICCUP	4	12%
ABDOMINAL PAIN	4	12%
HAEMATEMESIS	3	9%
MELENA	3	9%
HEARTBURN	2	6%
CONSTIPATION	1	3%
DIARRHEA	1	3%

DISCUSSION

Chronic renal failure is a collection of signs and symptoms also known as uremia and is due to metabolic derangements of the body's organ and systems. So chronic renal failure may present with the clinical features of involvement of any organ in the body. The present study is about upper gastrointestinal tract involvement in chronic renal failure. the gastro intestinal symptoms include anorexia, nausea, vomiting, hiccup haematemesis, melena, pain abdomen etc., The commonest symptoms in this study were nausea, anorexia and vomiting. An increased incidence of peptic ulceration as high as 25% has been reported in patients with chronic renal failure.[3] It was thought to be due to hypergastrinemia associated with chronic renal failure.

Gastric secretary studies were done in the past by Goldstein et al[4] which reported spontaneous gastric hypersecretion in chronic renal failure with elevated basal and nocturnal secretions. Whereas most of the earlier studies described varying levels of gastric acid secretion and radiologically demonstrable peptic ulcer disease, recent studies have documented a higher incidence of gastro duodenal inflammatory changes[5].

The reported incidence of gastro intestinal symptoms in chronic renal failure varies from 37% to 67%.[5] In the present study to we had similar results where gastro intestinal symptoms were present in 54% of cases. Nausea and loss of appetite were the commonest symptoms occurring in 34% of the patients. Gastrointestinal bleeding occurred in 3% of our patients and one patient had major gastrointestinal bleed and other 2 had minor bleeding. In the patient with major bleed the ulcer base as seen by endoscopy showed bleeding vessel. Gastro intestinal bleeding was present in 17.9% amongst the patients reported by Tani et al.[6]

The causes of upper gastro intestinal bleeding in uremic patient s have varied from different studies. Whereas Cunningham[7] encountered gastric telangiectasias as the major cause of bleeding, Tani et al[6] reported haemorrhagic gastritis as the main cause. Duodenal ulcer has been an uncommon cause of bleeding in all the studies.

The higher incidence of peptic ulcer in patients with chronic renal failure reported earlier was mainly based on barium meal examination.[8] Endoscopic studies have not supported the earlier impression.[6] The present study also reported the same incidence of peptic ulcer. More recent endoscopic studies indicate that the prevalence of peptic ulceration is only 2 percent, not significantly different from that for the general population.[9] According to Brenner[3], younger patients with uraemia can tolerate more severe degrees of renal insufficiency before becoming symptomatic. But in this study there is no influence by age on the symptoms. The incidence of symptoms in both sexes were similar.

Coming to endoscopic findings the overall incidence of the endoscopic abnormalities in chronic renal failure has been reported to vary from 45.7 to 83.3%.[5] In the present study endoscopic mucosal abnormalities were present in 34% of the patients. The endoscopic involvement of the oesophagus i.e., Lower 1/3 of esophagus was reported to occur in 3.3% to 23.3% of the patients by previous workers. The incidence in the present study was 6%. Similarly the reported histological changes ranged from 12.5% to 4-L8%. In the stomach mucosal pallor was reported as a frequent finding and was seen in 9% of the patients according to study done by Frazin et al.[10] In this study mucosal pallor was seen in almost all cases, mucosal pallor in stomach and oesophagus is an endoscopic reflection of anaemia in chronic renal failure. Prominent hypertrophic folds in the fundal mucosa and cobblestone pattern previously reported in chronic renal failure patients were not seen in our patients. The reported incidence of stomach involvement endoscopically varied from 13.3% to 30% and in the present study it was 12%. Duodenum was involved endoscopically in 23.3% to 33.3% of the patients in previous studies and it was 17% in this study. Both stomach and duodenum were involved in 2 (6% of) patients.

In the dialysis group, of the 10 patients, 3 cases showed changes endoscopically (30%) and 7 cases showed no changes. In conservative management group of the 25 patients, 16 showed no changes and 9 showed changes endoscopically (36%). These results shows that the incidence of endoscopic changes was slightly higher in the conservatively managed rather than those on dialysis therapy. Upper gastrointestinal bleeding is a common cause of death in dialysis patients. Hence upper gastro intestinal endoscopic evaluation of patients on maintenance haemodialysis may be useful to minimize the upper gastro intestinal bleeding. These patients should be treated adequately with antiulcer therapy if they show gastroduodenal mucosal changes.

Upper gastrointestinal bleeding has been reported in 4% to 22% of renal transplant recipients[11] and hence routine pre-transplant upper gastro intestinal evaluation to detect ulcers has been advised. In these patients, ulcers may respond well to anti secretary therapy. Some centres place all renal transplant patients on prophylactic H_2 blocker therapy in the immediate post-operative period.

CONCLUSION

The following conclusions were arrived from our study. In our study gastro intestinal symptoms were present in 54% of patients. Endoscopic mucosal abnormalities were present in 34% of the patients. Duodenum was the commonest site of involvement in the form of erosive duodenitis and duodenal ulcers. Endoscopic lesions were more frequent in those who were in advanced stages of chronic renal failure reflecting a positive correlation of upper gastro intestinal lesions with the severity of chronic renal failure. Hence by advocating a

gastrododenoscopic screening in all chronic kidney disease patients will help in reducing the GI related morbidity and mortality.

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