



“STUDY OF GASTROINTESTINAL MANIFESTATIONS WITH ENDOSCOPIC EVALUATION IN PATIENTS WITH CHRONIC KIDNEY DISEASE”

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ABSTRACT

Chronic Kidney Disease is a clinical syndrome due to persistent renal dysfunction leading to excretory, metabolic and synthetic failure culminating in accumulation of non protein nitrogenous substances and presents with varied clinical features. Nausea, vomiting, anorexia are the usual gastro intestinal symptoms that are frequently encountered in patients with advanced renal failure. The present study done at our Hospital is about analyzing the gastrointestinal symptoms and the Upper Gastro Intestinal Endoscopic changes in patients with Chronic Kidney Disease.

KEYWORDS : Chronic kidney Disease, Endoscopy, uremic syndrome

INTRODUCTION

Chronic Kidney Disease is a clinical syndrome due to persistent renal dysfunction leading to excretory, metabolic and synthetic failure culminating in accumulation of non protein nitrogenous substances and presents with varied clinical features. The diagnosis has to be confirmed by demonstrating progressive and persistent reduction in glomerular filtration rate, elevation of blood urea, serum creatinine, reduction in creatinine clearance and the associated metabolic abnormalities. The imaging hallmark of chronic kidney disease is the reduced kidney size with poor corticomedullary differentiation on ultrasound abdomen.

Nausea, vomiting, anorexia are the usual gastro intestinal symptoms that are frequently encountered in patients with advanced renal failure.

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 gastro duodenal inflammatory changes.

The present study done at our Hospital is about analyzing the gastrointestinal symptoms and the Upper Gastro Intestinal Endoscopic changes in patients with Chronic Kidney Disease.

AIMS OF THE STUDY

1. To find out the incidence of gastrointestinal symptoms in patients with Chronic Kidney Disease.
2. To find out the incidence of Endoscopic involvement of Upper Gastrointestinal tract in Chronic Kidney Disease patients.
3. To find out the distribution of Upper Gastrointestinal Scopy findings in Chronic Kidney Disease patients with or without gastrointestinal symptoms.

The study was conducted in patients of Chronic kidney Disease admitted in K.A.P.V. Govt Medical College in Medicine and Nephrology wards.

MATERIALS AND METHODS

INCLUSION CRITERIA

1. Patients with creatinine clearance less than 30 ml/min
2. Patients with bilateral contracted kidneys with poor cortico medullary differentiation in ultrasound abdomen.
3. Patients with established chronic renal failure on conservative therapy (or) dialysis irrespective of etiology.

EXCLUSION CRITERIA:

1. Patients who are smoker and alcoholic
2. Known case of peptic ulcer disease previously documented
3. H/o intake of steroids, aspirin, NSAID's.
4. Patients with poor cardiovascular and pulmonary function.
5. Patients who underwent Renal transplant.

STUDY PERIOD:

This study was conducted between MAR 2017 and JULY 2017 at K.A.P.V.Govt.Medical college,Trichy.

STUDY POPULATION:

This study included 50 patients, 34 males and 16 females. 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 investigation, blood urea, serum creatinine, creatinine clearance and serum electrolytes were measured and abdominal ultra sonogram was performed. Complete hemogram was done in all patients.

Creatinine clearance is calculated using the **Cockcroft-Gault Equation**

Estimated creatinine clearance (ml/min)

$$\text{For Male} = \frac{(140 - \text{age} \times \text{body weight in kg})}{72 \times \text{Sr.creatinine}}$$

$$\text{For Female} = \frac{(140 - \text{age} \times \text{body weight in kg}) \times 0.85}{72 \times \text{Sr.creatinine}}$$

The patients were subjected to Oesophago-Gastro Duodenoscopy using PENTAX EPK -150 C scope after overnight fasting and after getting consent from the patients.

Endoscopic findings in esophagus, stomach and duodenum were recorded.

RESULTS & OBSERVATIONS

50 patients of chronic kidney disease were included in the study and out of these 35 patients belong to stage 5 CKD and 15 patients come under stage 4 CKD, subdivided as per their creatinine clearance value.

The age group of the patients range from 15 to 65 years. Out of 50 patients 16 of them were female and 34 of them were male. The history pertaining to the duration of illness is misleading since most of the patients give only a short history of illness which is not substantiated by their investigatory reports. In this study the Chronicity of the illness is taken into account with reference to the documented evidence of past history renal disease.

It was found that out of 50 patients, 25 of them were previously documented as Chronic Kidney Disease and they presented to the hospital because of worsening of their symptoms. The remaining 25 patients were presented for the first time to the hospital and their duration of illness is comparatively shorter.

The gastrointestinal symptoms were present in 45 patients and 5 patients have no specific GI symptoms. Upper Gastro intestinal Scopy

is done in all the patients irrespective of their symptoms.

Gastro Intestinal Symptoms:

The incidence of gastrointestinal symptoms is as follows
45 patients have GI symptoms out of 50 (90%)

Anorexia	41 (91%)
Nausea	19 (42%)
Vomiting	4 (8.8%)
Constipation	12 (26.6%)
Hiccups	7 (15.5%)
Abdominal pain	1 (2%)
Haematemesis	2 (4%)
Malena	0

Anorexia being the commonest symptom followed by Nausea, constipation and hiccups. Anorexia leads to malnutrition and constipation is attributable to the likely use of calcium, iron supplementations.

The Upper Gastro Intestinal Endoscopy Results:

Scopy revealed findings in	29 patients (58%)
Oesophagus involvement in	11 patients (37.9%)
Stomach involvement in	11 patients (37.9%)
Duodenum involvement in	16 patients (55%)

The remaining 21 cases revealed no findings in endoscopy.

The mode of pathological changes seen in UGI scopy in oesophagus, stomach and duodenum is as distributed as follows

OESOPHAGUS

Oesophagitis	5(17.2%)
Candidiasis	4(13.7%)
Hiatus hernia	2(6.8%)

STOMACH

Gastritis	5(17.2%)
Erosion in distal part of body	2(6.8%)
Antral lesions	8(27.5%)
Prepyloric ulcer	1(3.4%)

DUODENUM

Duodenitis	11(38%)
Deformed bulb	1(3.4%)
Erosions in 1st part	5(17.2%)
Ulcer ion 1st part of duodenum	3(10.3%)

The distribution of UGI Scopy findings were recorded and there were mixed lesions also involving the oesophagus & stomach, stomach & duodenum or oesophagus & duodenum.

Mixed involvement in UGI SCOPY

Oesophagus and stomach	- 6 patients (20.6%)
Oesophagus and duodenum	- 4 patients (13.7%)
Stomach and duodenum	- 4 patients (13.7%)

Out of 50 patients, 35 patients belong to stage 5 CKD and 15 Patients come under stage 4 CKD.

22 patients have UGI scopy findings among 35 patients of stage 5 CKD and 7out of 15 patients of stage 4 CKD have findings in UGIScopy.

Out of 50 patients, 45 patients have gastrointestinal symptoms and the predominant symptoms are anorexia, nausea. Among the 45 patients, 25 have UGI scopy findings. 5 patients have no gastrointestinal symptoms at all but 4 of them do have findings in UGI scopy.

DISCUSSION

Chronic kidney disease includes a constellation of signs and symptoms eventuating in "uremic syndrome" and it lead to disturbances in the function of virtually every organ system. The present study is about upper gastrointestinal tract involvement in chronic kidney disease.

The gastro intestinal symptoms include anorexia, nausea, vomiting, hiccups, haematemesis, malena, pain abdomen, constipation etc.,the commonest symptoms in this study were anorexia and nausea.

An increased incidence of peptic ulceration as high as 25% has been reported in patients with chronic renal failure. It was thought to be due to hypergastrinemia associated with chronic renal failure. The present study reports the endoscopic appearances of the gastro intestinal mucosa in chronic kidney disease patients. Patients with history of ingestion of aspirin, non-steroidal anti-inflammatory drugs, corticosteroids, alcoholics and smokers were excluded from the study for their effect on gastric mucosa².

The reported incidence of gastro intestinal symptoms in chronic kidney disease varies between 37% to 67% (Margolis D.M. 1998) and 93% as reported by (Goenka et al, 2006)³. In the present study gastro intestinal symptoms were present in 90% of cases. Anorexia and nausea were the commonest symptoms occurring in 82% of the patients.

Gastro intestinal bleeding (haemetemesis) occurred in 2 (4%) of our patients and 1 patient had major UGI bleed and other one had minor bleed. Both the patients have ulcer in the 1stpart of duodenum, with duodenitis and antral erosions and in the patient with major UGI 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 2000 and 10% of patients as reported by Goenka at 2006.

Higher rates of gastric and duodenal mucosal lesions and H.Pylori infection in uremic patients in comparison with subjects with normal renal function may have resulted from higher serum levels of urea, anaemia and fluctuations in the gastric blood supply in CKD and Hemodialysis patients. However, more tenable evidence from controlled trials is required for the eradication of H.Pylori in all uremic patients and transplant candidates.

In the present study the two patients who had haemetemesis showed ulcer in the 1stpart of duodenum associated with duodenitis and antral erosions and the patient who had a major UGI Bleed was treated with blood transfusion and other supportive measures but no definite endoscopic therapy was done.

The higher incidence of peptic ulcer in patients with chronic kidney Disease reported earlier was mainly based on barium meal examination. Endoscopic studies have not supported the earlier impression.

In the present study, 4 patients showed ulcer in UGI scopy with ulcer in the 1st part of duodenum in 3 patients and 1 patient had a prepyloric ulcer. More recent endoscopic studies indicate that the prevalence of peptic ulceration in only 4 percent, not significantly different from that of the general population .

The overall incidence of the endoscopic abnormalities in chronic kidney disease has been reported to vary from 45.7 to 83.3% .

The reported incidence was 66.7% according to M.K.Goenka et al (2006) and more than 50% according to Agarwal et al (2008). In the present study endoscopic mucosal abnormalities were present in 58% of the patients.

Increased incidence of hiatus hernia in chronic kidney disease has been reported by M.K.Goenka et al (2006) in 10% of his 30 patients. In the present study 6.8% of patients showed hiatus hernia.

The endoscopic involvement of the oesophagus was reported to occur in 3.3% to 23.3% of the patients by previous workers. The incidence in the present study was 37.9% among the patients who have UGI Scopy findings (oesophagitis 17.2%, candidiasis 13.7%, hiatus hernia 6.8%) Among the 4 patients who have oesophageal candidiasis 1 of them have diabetes.CKD itself induce an immunocompromised state apart from diabetes.

Similarly the reported histological changes ranged from 12.5% to 44.8% in the stomach. Mucosal pallor was reported as a frequent finding and was seen in 94% of the patients according to Frazin et al 19924. In our study, mucosal pallor was seen in more than 80% of patients. Mucosal pallor in oesophagus and stomach is an endoscopic reflection of severe anemia in chronic renal failure.

The reported incidence of stomach involvement endoscopically varied from 18.3% to 40%.In the present study it was 37.9% comprising

(Gastritis 17.2%, erosion in the distal part of body 6.8%, antral erosions 27.5%, and prepyloric ulcer 3.4%)

Duodenum was involved endoscopically in 23.3% to 33.3% of the patients in the previous studies; Margolism D.M. (1998) reported a very high incidence of duodenitis (60%-80%) in patients with chronic kidney disease. According to Goenka it was 37.5%, and endoscopic and histological changes were noted with equal frequency in the duodenum. In our study duodenum is mainly involved (55%) when compared to stomach and oesophagus. The pattern of involvement is as follows, duodenitis 38%, erosion in the 1st part of duodenum 17.2%, ulcer in the 1st part of duodenum 10.3%, deformed duodenal bulb 3.4%.

Hyperplasia of Brunner's gland was a common finding seen in patients with chronic kidney disease and the incidence was reported as 60.3% in regular dialysis uremic patients by Frazin et al (1992). The corresponding endoscopic appearance of prominent rigid nodular folds with a reddened surface was reported by him in 38.2% of the patients (Frazin et al 1992). The present study did not show any Brunner's gland hyperplasia. Hyperplasia of Brunner's glands has been shown to correlate with gastric acid hyper secretion (Frazin et al 1992).

In this study, endoscopically no one showed involvement of all 3 sites. Both stomach and duodenum were involved in 4 (13.7%) patients. oesophagus and stomach combinedly involved in 6 patients (20.6%), oesophagus and duodenal involvement comprise 4(13.7%) patients.

The gastrointestinal symptoms were present in 45 patients and 5 patients have no specific GI symptoms. Upper Gastro intestinal Scopy is done in all the patients irrespective of their symptoms. 86.2% and 13.8% is the distribution of UGI Scopy findings in those with and without GI symptoms respectively. Analysis of their distribution shows no significant 'P' value indicating a smaller sample size and no significant correlation.

Stage 5 CKD comprises about 70% and stage 4 CKD 30% in the study population. The percentage of UGI Scopy findings in stage 5 CKD is 75.9% and stage 4 CKD is 24.1%. Analysis of their distribution in view of correlating the severity of renal disease with that of endoscopic findings doesn't show significant P value indicating a smaller sample size and no significant correlation.

Peptic ulcer disease and intestinal bleeding continue to be common problems in chronic dialysis patients. Intermittent systemic heparinisation, use of oral anticoagulants, antiplatelet agents, contributes to this problem. 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 gastro duodenal mucosal changes.

Moreover peptic ulceration, upper gastrointestinal hemorrhage have been reported in 4% to 22% of renal transplant recipients (Bell G.M.2002) and routine pre-transplant upper gastro intestinal evaluation to detect ulcers has been advocated. In these patients, ulcers may respond well to anti secretory therapy. Some centers place all renal transplant patients on prophylactic H2 blocker therapy in the immediate post operative period. Hence pre transplant evaluation of upper gastro intestinal tract may be useful to avoid (or) minimize the post renal transplant complications-which account for up to 40 percent of post transplant deaths.

CONCLUSION

- 1) Gastro Intestinal symptoms are more common (90%) in advanced stages of Chronic Kidney Disease.
- 2) The study reveals significant Upper Gastro Intestinal Scopy Findings(58%) in Chronic Kidney Disease patients.
- 3) Duodenitis(38%) is the commonest mucosal abnormality among the Scopy findings.
- 4) There is no direct correlation between Gastrointestinal symptoms and Upper GastroIntestinal Scopy findings.

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