

Is Upper Endoscopy Helpful in Kidney Transplantation Candidates?

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Abstract

Background: Renal transplantation is the gold standard treatment for patients with chronic kidney disease (CKD). Patients with CKD often have dyspeptic symptoms and may develop peptic disease leading to severe gastrointestinal complications. Many departments perform an upper gastrointestinal endoscopy (UGI) on candidates for a kidney transplant to catch UGI diseases and prevent complications.

Methods: This is a retrospective study enrolled 35 patients with chronic kidney disease addressed to perform UGI endoscopy before kidney transplantation, between December 2018 and December 2019.

Results: A total of 35 patients were enrolled with a mean age of 55 years. 14% were symptomatic. Upper endoscopy revealed alterations in 29 patients including erosive gastritis (14%), non-erosive gastritis (62%), duodenal ulcers (6%), hiatal hernia (6%) and peptic esophagitis (3%). *Helicobacter pylori* was present in 23 cases with Intestinal metaplasia in one patient.

Conclusion: Gastrointestinal affection is common in patients with CKD. We conclude that upper endoscopy is mandatory to kidney transplant candidates. It permitted to detect abnormalities, treat them early, and avoid complications.

Keywords: Chronic Kidney Disease; Upper Endoscopy; *Helicobacter pylori*

Abbreviations

CKD: Chronic Kidney Disease; UGI: Upper Gastrointestinal; *Hp*: *Helicobacter pylori*

Background

Chronic renal disease (CKD) dramatically reduces health-related quality of life and leads to premature death. The treatment of choice for CKD is kidney transplantation, it improves quality of life, prolongs survival and costs less than dialysis [1,2].

Patients with CKD often have dyspeptic symptoms and may develop peptic disease leading to severe gastrointestinal complications, it may be aggravated by the use of immunosuppression after transplantation. Many departments perform upper gastrointestinal (UGI) endoscopy on candidates for a kidney transplant to catch UGI diseases and prevent complications.

Aim of the Study

Our study aims to describe the alterations revealed by upper endoscopies in kidney transplantation candidates, to assess the prevalence of *Helicobacter pylori* (*Hp*) infection in this population. Results are discussed with a review of the literature.

Methods

This retrospective study enrolled 35 patients with chronic kidney disease aged 18 or older addressed by dialysis units to our digestive functional units during 1 year to perform UGI endoscopy before been included in the kidney transplantation list.

Upper endoscopies were performed in ambulatory by physicians from the digestive functional units of university hospital center Ibn Sina. Histological identification of *Hp* infection was performed systematically based on biopsies taken from the gastric antrum and fundus of the patients.

Results

A total of 35 patients were enrolled in this study, including 19 men (54%) and 16 women (46%) aged 18 to 67 years old (Table 1).

Characteristic	CKD patients
Male	19
Female	16
Male/female	1.2
Age range (Year)	18 - 67
Mean age (Year)	55
Smoking	0

Table 1: Patient demographics.

5 patients (14%) were complaining from gastrointestinal symptoms including dyspepsia (n = 2) and abdominal pain (n = 3).

All patients underwent routine EGD before transplantation.

The upper endoscopy results of the 35 patients revealed that 83% (n = 29) had some form of UGI alteration. Table 2 shows alterations identified: Erosive gastritis (14%), non-erosive gastritis (62%), duodenal ulcers (6%), hiatal hernia (6%), and peptic esophagitis (3%).

UGI alterations	N (%)
Non-erosive gastritis	22 (62%)
Erosive gastritis	5 (14%)
Duodenal ulcers	2 (6%)
Hiatal hernia	2 (6%)
Peptic esophagitis	1 (3%)
Absence	6 (17%)

Table 2: Upper endoscopy alterations of 35 kidney transplant candidates with chronic kidney disease.

All patients were tested for *Hp* infection by gastric biopsy; it was positive in 65% (n = 23) (Table 3). Intestinal metaplasia was found in one patient with *Hp* infection.

Discussion

Gastrointestinal disorders in patients with chronic kidney disease (CKD) and with chronic hemodialysis are quite common [3,4].

UGI alterations	N (%)	Presence of Hp N	Absence of Hp N
Non-erosive gastritis	22 (62%)	12	7
Erosive gastritis	5 (14%)	5	0
Duodenal ulcers	2 (6%)	2	0
Hiatal hernia	2 (6%)	1	1
Peptic esophagitis	1 (3%)	0	1
Absence	6 (17%)	3	3

Table 3: Association between endoscopic alterations and presence of *Helicobacter pylori* in Kidney transplant candidates with chronic kidney disease.

Most patients in our study did not complain of gastrointestinal symptoms, only 14% were symptomatic. However, upper endoscopy revealed alterations in 29 patients. This frequent situation was described in a lot of studies like in Sotoudehmanesh work in which no significant associations were found between symptoms and gastrointestinal lesions in hemodialysis patients [5].

In our kidney transplant candidates, gastroscopy revealed gastro-duodenal alterations in 83% cases. The first endoscopic alteration was non-erosive gastritis (62%) followed by erosive gastritis (14%), duodenal ulcers (6%) and peptic esophagitis (3%). The same abnormalities were found approximately in Krishnan’s work with different frequency, he complete his study by dividing patients based on whether they were infected or not by *Hp* and compared the groups for gastrointestinal symptoms, endoscopic findings and time on dialysis. No statistically significant differences were elicited by the comparisons [3].

UGI diseases are frequently treated with proton pump inhibitors (PPIs) and H2 antagonists. To treat possible transplant rejection after transplantation, immunosuppressants are prescribed, including Mycophenolate Mofetil (MMF), Cyclosporine, Tacrolimus and Prednisone [6]. It is important to consider the interaction between these substances and the drugs used to treat UGI diseases, for example, Omeprazole can increase the effect of Tacrolimus and can also reduce the effect of MMF by different mechanisms. Therefore, early identification by gastroscopy and treatment of UGI alterations before kidney transplantation in patients with CKD may reduce the risk of these interactions occurring [6].

Hp infection in our study was present in 23 patients (65%) without being specific of one kind of UGI endoscopic alteration. This could be an important factor in the development of ulcers in patients after kidney transplantation [7]. *Hp* infection was also described in more than 90% of MALT (gastric mucosa associated lymphoid tissue) cases, the eradication of *Hp* leads to the regression of the gastric lesions observed in low grade B-cell MALT lymphomas, suggesting that cases infected with *Hp* should be treated early, especially in patients who are going to receive immunosuppressants including candidates for a kidney transplant [8].

The therapy to eradicate *Hp* given to candidates to a renal transplant can be the same as in the general population. However, interactions can take place: Clarithromycin which is part of the eradication protocol seems to increase the effect of Tacrolimus and amoxicillin can decrease the effect of MMF. Therefore, performing endoscopies and biopsies to identify *Hp* infection and treat it early before kidney transplantation is very important, it avoids postoperative complications [6].

Intestinal metaplasia is considered as a preneoplastic lesions that must be searched on ulterior endoscopy to eliminate the appearance of cancer. This anomaly was present in one patient in association with *Hp* infection, he will be controlled by UGI endoscopy, like in general population with gastric intestinal metaplasia, to eliminate the occurrence of complications since there are no specific recommendations in patients with CKD or kidney transplant candidates [9,10].

In our series, upper gastrointestinal bleeding (UGIB) was absent. This anomaly is frequent in chronic hemodialysis patients due to the repeated use of heparin during dialysis and to uremic factors [11]. UGIB is also observed in renal transplant patients [12], therefore, these patients should be closely monitored.

The most common gastrointestinal complications after renal transplantation noted in Ponticelli, *et al.* work were peptic ulcers, esophagitis, and oral lesions. It has been shown in the same study that the immediate postoperative ulcer complications in those patients have decreased considerably since they began to be actively screened for signs of peptic ulcers before transplantation [7].

The immediate postoperative operation of renal transplant patients is considered to be critical for the occurrence of gastrointestinal complications, therefore close monitoring should be carried out during the first month after surgery [7-13].

Conclusion

Renal transplantation is the gold standard treatment for patients with chronic kidney disease. This indication requires monitoring and elimination of possible pre and post-operative risks as UGI alterations.

UGI endoscopy in our study revealed alterations in more than 80% cases even in absence of digestive symptoms. Severe lesions were found in some cases as peptic ulcers and gastric intestinal metaplasia.

We conclude that upper endoscopy is mandatory to kidney transplant candidates. It permits to detect abnormalities, treat them early, and avoid complications.

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