



Is Upper Gastrointestinal Tract Screening Necessary in Kidney Transplant Candidates?

Böbrek Nakil Adaylarında Üst Gastrointestinal Sistem Taraması Gerekli Mi?

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Abstract

Aim: The aim of this study is to present and discuss upper gastrointestinal tract endoscopy findings in renal transplant candidates with a high incidence of gastrointestinal system diseases.

Material and Method: Between January 2014 and December 2019, patients over the age of 18 who were on dialysis for chronic renal failure and renal transplant candidates at Karadeniz Technical University Farabi Hospital were included in the study. Upper gastrointestinal endoscopic findings and pathology results (atrophy, *Helicobacter pylori* and intestinal metaplasia) of the patients were retrospectively evaluated by scanning from the electronic archive system of the hospital.

Results: The study included 105 patients. 53 (50.5%) of the patients were male. The mean age of the patients was 44.09±14.16 years and there was no statistically significant difference between male and female sexes (p=0.961). The most common endoscopic findings were pangastritis (44.8%), antral gastritis (27.6%) and esophagitis (16.2%). Only 4 (3.8%) patients had duodenal ulcer. Atrophy was positive in 3 (13%) of 23 patients, HP was positive in 19 (27.1%) of 67 patients and IM was positive in 17 (24.3%) of 56 patients.

Conclusion: Patients who are renal transplant candidates should be reviewed for indication of routine upper endoscopic examination before transplantation to prevent upper GI tract complications that may develop after transplantation.

Keywords: Endoscopy, renal transplant candidate, chronic kidney disease

Öz

Amaç: Çalışmadaki amacımız gastrointestinal sistem hastalık insidansı yüksek olan renal nakil adayı olan hastalarda üst GIS endoskopi bulgularını sunmak ve tartışmaktır.

Gereç ve Yöntem: Ocak 2014-Aralık 2019 tarihleri arasında Karadeniz Teknik Üniversitesi Farabi Hastanesi'nde kronik böbrek yetmezliği nedeniyle diyalize giren, renal nakil adayı olan 18 yaş üstündeki hastalar çalışmaya dâhil edildi. Hastaların üst gastrointestinal endoskopik bulguları ve patoloji sonuçları (atrofi, *Helicobacter pylori* ve intestinal metaplazi) retrospektif olarak hastanenin elektronik arşiv sisteminden taranarak değerlendirildi.

Bulgular: Çalışmaya 105 hasta dâhil edildi. Hastaların 53'ü (%50,5) erkek idi. Hastaların ortalama yaşı 44,09±14,16 idi, kadın ve erkek cinsiyet arasında yaş açısından istatistiksel olarak anlamlı farklılık saptanmadı (p=0,961). En sık görülen bulgular endoskopik bulgular pangastrit (%44,8), antral gastrit (%27,6) ve özofajit (%16,2) idi. Sadece 4 (%3,8) olguda duodenal ülser belirlendi. Atrofi değerlendirilmesi yapılabilen 23 hastanın 3'ünde (%13) atrofi, HP değerlendirmesi yapılan 67 hastanın 19'unda (%27,1) HP ve intestinal metaplazi (IM) değerlendirmesi yapılan 56 hastanın 17'sinde (%24,3) IM pozitif saptandı.

Sonuç: Renal nakil adayı olan hastalar nakil sonrası gelişebilecek üst GI sistem komplikasyonlarının önlenmesi amacıyla nakil öncesi rutin üst endoskopik inceleme endikasyonu gözden geçirilmelidir

Anahtar Kelimeler: Endoskopi, renal nakil adayı, kronik böbrek hastalığı



INTRODUCTION

Chronic kidney disease (CKD) is a progressive and irreversible disease characterized by a decrease in the number of nephrons and renal function, usually progressing to end-stage renal failure. Uremia is a syndrome caused by renal failure, affecting the gastrointestinal system and other organs, with clinical and laboratory findings.^[1] Gastrointestinal (GI) disorders are among the leading chronic diseases seen in patients with end-stage renal disease (ESRD).^[2]

GI symptoms have been reported in more than 80% of dialysis patients.^[3] These symptoms may increase as kidney disease progresses.^[4] GI diseases are often not detected by clinical findings and diagnostic tests.^[5] Therefore, endoscopic screening in patients with CKD is essential to detect GI diseases.

According to many studies, the most common upper GI diseases in patients with CKD are gastritis, erosive duodenitis and esophagitis, peptic ulcer, *H.pylori* infections and bleeding. The causes of GI tract damage include medications, metabolic disorders, gastrin, gastroesophageal reflux disease and infection due to *Helicobacter pylori* (HP).^[2]

Patients who are preparing for kidney transplantation, either from a living donor or a cadaveric donor, need to know their GI system in advance and make the necessary preparations because they will undergo a major surgery that will affect them metabolically and psychologically.

Patients are at high risk for GI tract complications because they will receive high dose corticosteroid therapy and other immunosuppressive therapies after renal transplantation (G9). According to many studies, there is no consensus regarding upper GI tract endoscopy before renal transplantation.^[6] Many studies in kidney transplant candidates have found high incidences of GI tract diseases.^[7]

The aim of this study was to investigate the necessity of pre-transplant screening of the upper GI tract in patients who will be under great metabolic and psychological stress after kidney transplantation and whether there is a need to take precautions for complications such as gastric ulcer/bleeding that may develop due to changes in the treatment plan after transplantation.

MATERIAL AND METHOD

Between January 2014 and December 2019, patients over the age of 18 who were on dialysis for chronic renal failure and renal transplant candidates at Karadeniz Technical University Farabi Hospital were included in the study. Upper gastrointestinal tract endoscopic findings and pathology results (atrophy, *Helicobacter pylori* and intestinal metaplasia) of the patients were retrospectively scanned from the electronic archive of the hospital.

Upper GI tract endoscopy was performed under sedoanalgesia after at least 8 hours of fasting. Two biopsies were taken from at least one region of the antrum, corpus, fundus and/or cardia of the stomach and placed in 5 ml formalin-containing containers.

The biopsy materials were evaluated by Giemsa method for HP and PAS/AB pH 2.5 histochemical reaction for IM. This study was designed and conducted according to the principles of the Declaration of Helsinki. The study was carried out with the permission of Karadeniz Technical University Faculty of Medicine Clinical Researches Ethics Committee (Date: 24.11.2021, Decision No: 24237859-849). Since the study was retrospective, informed consent was not obtained from the patients.

Statistical Analysis

SPSS Windows version 22 program was used for statistical tests. Continuous variables were evaluated in terms of normal distribution by histogram, Q-Q graph and Shaphiro-Wilk or Kolmogorov-Smirnov tests according to the number of variables. Continuous variables with normal distribution were presented as mean±standard deviation throughout the study and independent-variables t-test was used to compare two groups. Categorical variables were presented as frequency and percentage. Tests with a p value of 0.05 or less at the 95 percent confidence interval were considered statistically significant.

RESULTS

The study included 105 patients. 53 (50.5%) of the patients were male and 52 (49.5%) were female. The mean age of the patients was 44.09±14.16 years and there was no statistically significant difference in age between male and female (p=0.961) (**Table 1**).

Table 1. Demographic characteristics of the patients

Variable		p
Male / Female, n (%)	53 (50.5) / 52 (49.5)	
Age, mean±SD (years)	44.09±14.16	
Male	44.02±14.76	0.961
Female	44.15±13.66	

Endoscopic findings were normal in 23 patients (21.9%) and abnormal in 82 patients (78.1%). The most common findings were pangastritis (44.8%), antral gastritis (27.6%) and esophagitis (16.2%) (**Table 2**).

Table 2. Endoscopic findings of the patients

Variable.	n (%)
Esophagus	
Esophagitis	17 (16.2)
LA Grade A	14
LA Grade B	3
Hiatal hernia	6 (5.7)
Laxity of the LES	2 (1.9)
Varicose veins	1 (1)
Stomach	
Antral gastritis	29 (27.6)
Erosive antral gastritis	11
Non-erosive antral gastritis	18
Pangastritis	47 (44.8)
Erosive pangastritis	1
Non-erosive pangastritis	46
Fundic gland polyp	3 (2.9)
Duodenum	
Bulbit	29 (27.6)
Erosive bulbit	6
Non erozive bulbit	23
Ulcer	4 (3.8)

*LA: Los Angeles. LES: Lower esophageal sphincter

Biopsies were obtained in 70 of 105 patients (66.7%). Of the patients who underwent biopsy, 47 (67.1%) had non-active chronic gastritis, 17 (24.3%) had active chronic gastritis, and 6 (8.6%) had normal pathology findings (**Table 3**).

Table 3. Pathology findings of the patients

Variable	n (%)
Normal	6 (8.6)
Gastritis	64 (91.4)
Non-active chronic gastritis	47
Active chronic gastritis	17
Atrofi	3 (13)
HP	19 (27.1)
IM	17 (24.3)

*HP: *Helicobacter pylori*, IM: Intestinal metaplasia

Atrophy was positive in 3 of 23 patients (13%), HP was positive in 19 of 67 patients (27.1%) and intestinal metaplasia (IM) was positive in 17 of 56 patients (24.3%) (**Table 3**).

DISCUSSION

The prevalence of CKD and ESRD has been steadily increasing over the last 10 years.^[8]

Peptic ulcer and gastric cancer have been associated with chronic HP infection.^[9,10] There are studies showing that the frequency of HP infection in patients with CKD is higher than in the general population.^[11] Studies have reported HP infection rates between 49% and 66% in CKD patients.^[7,11] Netto et al. found the HP positivity rate to be 58.3% in renal transplant candidates in a study conducted in Brazil.^[12] The HP positivity rate in our study was found to be 27.1%, which is lower compared to the literature.

Weak immunity and a relatively more frequent history of antibiotic use due to susceptibility to infections in patients with ESRD may explain this difference. However, the HP positivity rate in our CKD patient population was similar to the HP positivity rate of 27.8% in another study in which a total of 2530 patients including the general population admitted to our endoscopy unit were evaluated.^[13] Although it is below the average in Turkey, it is similar to the current HP positivity rate in our endoscopy population, suggesting that the difference with the literature may be explained by local prevalence. Most of the HP prevalence rates reported in the literature are based on older studies and the idea that HP prevalence decreases with both treatment and hygiene standards remains a problem that needs to be tested.

Gastric intestinal metaplasia is a precancerous lesion involved in Correa's cascade, a model for gastric cancer development.^[14] Netto et al. found intestinal metaplasia positivity in 8.3% of renal transplant candidates.^[12] In our study, the IM positivity rate of renal transplant candidates was 24.3%. This rate is similar to the IM rate of 26.8% in our study cited above.^[13]

Acute upper GI tract bleeding is higher in patients with ESRD compared to the general population.^[15] Because of the high mortality risk, upper GI tract ulcers and erosions should be recognized and treated without bleeding in patients who

will receive high-dose corticosteroid therapy after renal transplantation. In our study, duodenal ulcer was observed in 4 patients, while erosions were observed in the stomach in 12 patients and in the bulbous in 6 patients.

Although upper GI tract endoscopy does not require any preparation other than fasting and taking a biopsy does not pose a significant additional risk in renal transplant candidates, the indication for routine upper endoscopic examination of renal transplant candidates should be reviewed because pathologic findings that are statistically different from the general population were not detected. Our retrospective and single-center study has limitations. Multicenter and well-designed studies are needed to develop appropriate screening and treatment protocols for renal transplant candidates.

CONCLUSION

Patients who are renal transplant candidates should be reviewed for indication of routine upper endoscopic examination before transplantation to prevent upper GI tract complications that may develop after transplantation..

ETHICAL DECLARATIONS

Ethics Committee Approval: The study was carried out with the permission of Karadeniz Technical University Faculty of Medicine Clinical Researches Ethics Committee (Date: 24.11.2021, Decision No: 24237859-849).

Informed Consent: Because the study was designed retrospectively, no written informed consent form was obtained from patients.

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