# EFFECTS OF PROTON PUMP INHIBITORS ON KIDNEY TRANSPLANT RECIPIENTS

Omer Uludag[1], Safak Mirioglu[1], Ahmet B. Dirim[1], Omer F. Akardere[1], Arif Akyildiz[1], Mehmet S. Sever[2], Yasar Caliskan[2]

[1] Istanbul University, Istanbul Faculty of Medicine, Department of Internal Medicine, Istanbul, Turkey
[2] Istanbul University, Istanbul Faculty of Medicine, Department of Internal Medicine, Division of Nephrology, Istanbul, Turkey

## INTRODUCTION AND AIMS

Impaired kidney function and hypomagnesemia with the use of proton pump inhibitors (PPIs) have been reported in various populations. PPI use is also common among kidney transplant recipients (KTRs). In this study we aimed to examine the effect of PPI use on serum magnesium (Mg) levels and the outcome of KTRs.

## METHODS

We examined demographic features, clinical and laboratory characteristics of 302 KTRs, 275 of whom treated with PPI (n=178), histamine H2 receptor antagonists (H2RAs) (n=42) or both (n=55) and followed-up for a median duration of 109 (IQR: 82-156) months. There were no differences among these three groups regarding immunosuppressive treatment regimens. We evaluated the association of PPI use with clinical features [age, gender, donor type, serum creatinine, estimated glomerular filtration rate (eGFR), proteinuria, and mean Mg levels], incidences of graft rejection and allograft loss during follow-up. eGFR of patients were calculated using CKD-EPI formula.

## RESULTS

Demographic features, clinical and laboratory characteristics of patients are shown in the table. Mean serum creatinine level was higher in patients treated with only PPI as compared to patients treated with only H2RA (1.49±0.99 mg/dL vs 1.24±0.46 mg/dL, respectively) (p=0.017).

**Table.** Demographic and laboratory characteristics of patients

| Characteristics / (Mean ±SD) | PPI (n=233) | No PPI (n=69) |
|---|---|---|
| **Age** | 36±10 | 33±11 |
| **Gender (male/female)** | 129/104 | 42/27 |
| **Donor type (living/cadaveric)** | 107/125 | 41/28 |
| **Serum creatinine (mg/dL)** | 1.5±0.96 | 1.48±0.96 |
| **eGFR (ml/min/1.73 m²)** | 62.8±25.5 | 62.9±23.9 |

Thirteen KTRs (4.3%) experienced graft loss, no statistical difference was observed between patients who were treated with PPI (n=11, 4.7%) and who were not (n=2, 2.9%) (p=0.51). Biopsy-confirmed graft rejection was seen in 41 (13.5%) patients; among these KTRs, 36 patients (15.5%) were treated with PPI and 5 patients (7.2%) were not. Although this difference was not statistically significant, there was a certain trend (p=0.08). Rejection rate was significantly higher in patients treated with only PPI as compared to patients treated with only H2RA (p=0.05). Mean serum Mg levels were lower in patients treated with only PPI when compared to patients treated with only H2RA (0.726 mmol/L vs 0.767 mmol/L, p=0.033). Mean serum Mg levels also lower in KTRs treated with PPI as compared to patients who were not (0.728 mmol/L vs 0.755 mmol/L, p=0.061), however this finding was not statistically significant.

## CONCLUSIONS

Treatment with PPI was found to be associated with higher allograft rejection rate, impaired kidney function and hypomagnesemia in KTRs.


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