

A comparative study of the effect of proton pump inhibitor and ranitidine on serum magnesium level and blood pressure in chronic hemodialysis patients with hypotension

Abstract

Background: Hypotension is the most common side effect of hemodialysis. Recent observations suggest that hypomagnesemia is associated with hypotension, increased risk of cardiovascular complications, and mortality in hemodialysis patients. On the other hand, hypomagnesemia secondary to PPI consumption is a drug complication that can be seen in the consumption of all types of PPI.

Aim: The aim of this study was to determine the effect of proton and ranitidine pump inhibitors on reducing serum magnesium levels and blood pressure in chronic hemodialysis patients with hypotension

Materials and Methods: In this clinical trial, 44 hemodialysis patients with inclusion criteria were admitted to the study after obtaining consent. Patients were selected by census and treated randomly using sealed envelopes containing code A and code B for placebo. At first, blood samples were taken from all patients and their blood magnesium and blood pressure levels were checked and recorded, and then three months after the end of the study, their magnesium levels were checked and recorded. Then the intervention group was given placebo ranitidine (150 mg) and pantoprazole (40 mg) tablets and the control group was given placebo pantoprazole (40 mg) and ranitidine (150 mg) tablets daily for three months. After the study, sampling was repeated to measure blood magnesium levels and blood pressure was recorded in each hemodialysis session. After completing the study, the data were entered into the software and analyzed

Results: The mean age of patients was 60.14 ± 12.98 years. 63.6% of patients were female. The mean duration of dialysis in patients was 4.5 ± 3.31 years. Age, sex and duration of dialysis did not show a statistically significant difference between the two groups. Diastolic pressure after dialysis in the group receiving pantoprazole at the end of the study decreased significantly compared to the beginning of the study. Serum magnesium levels in the pantoprazole group showed a significant decrease at the beginning of the study compared to the end of the study.

Conclusion: Serum magnesium levels were significantly lower in the pantoprazole group than in the ranitidine group. The use of PPI was an independent predictor of low magnesium concentrations. In this study, a significant relationship was observed between PPI consumption and low serum magnesium levels in hemodialysis patients.

Keywords: Hemodialysis, pantoprazole, ranitidine, hypotension