

Long-Term Use of Omeprazole: Effect on Haematological and Biochemical Parameters

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ABSTRACT

Background: Long-term use of proton pump inhibitors (PPIs) is believed to have various potential adverse events. Omeprazole is a part of PPIs most commonly prescribed worldwide; it irreversibly binds to H⁺-K⁺ ATPase enzyme system in the gastric parietal cells to reduce secretion of H⁺ ions into the lumen of stomach. The main objective of the current work is to assess the adverse effects of omeprazole medication on certain haematological and biochemical parameters in patients who were on treatment for one year and more. **Methods:** We conducted a comparative cross-sectional study between October 2021 and March 2022. A total of 90 participants of both sexes were enrolled in this study, aged between 25-58 years. The participants were categorized into two groups: 40 patients on long-term omeprazole medication (40 mg) as a patients group and 50 healthy subjects as a healthy group who did not use omeprazole. Complete blood count and biochemical parameters were measured for both groups. **Results:** Patients of a group I had remarkable significant reductions in the number of red blood cells (RBCs) ($p < 0.001$) and the indices. Omeprazole elevated the cholesterol level ($p < 0.001$) and triglyceride ($p < 0.001$) as well as low-density lipoprotein ($p < 0.01$). However, no impact was found with high-density lipoprotein (HDL) ($p > 0.05$). Alkaline phosphatase (ALKP) ($p < 0.001$) and aspartate aminotransferase (ASAT) ($p < 0.01$) levels were elevated in long-term patients treated with omeprazole. In contrast, no significant change was found in the level of alanine aminotransferase (ALAT) ($p > 0.05$). Creatinine level ($p < 0.001$) and nitrogen blood urea ($p < 0.0001$) were significantly increased in patients group treated with omeprazole medication. The results also showed that group I had a high significant decline in serum ferritin ($p < 0.0001$), vitamin D3 ($p < 0.01$) and calcium levels ($p < 0.001$) than that of healthy group. **Conclusion:** Prolonged use of omeprazole might result in adverse effect on haematological profile, particularly RBCs and their indices leading to develop anemia in patients on this medication. Furthermore, it might result in disturbances in biochemical profile, levels of minerals and vitamins as consequences of affected absorption.

Keywords: Omeprazole, blood count, hypocalcaemia, vitamin D, kidney function, cholesterol, triglyceride.