STUDY OF THE FUNCTIONAL STATE OF THE GASTRIC MUCOSA IN PATIENTS WITH CHRONIC IRON DEFICIENCY ANEMIA

Sultonova Hilola Zohidjon qizi
Master's Student, Andijan State Medical Institute.

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Abstract. *Chronic iron deficiency anemia (IDA) is commonly associated with structural and functional changes of the gastric mucosa, including reduced acidity, mucosal atrophy, and Helicobacter pylori infection. In this study, 48 IDA patients were examined and divided into two groups based on gastric acidity: normal (n = 26) and reduced (n = 22). Patients with low acidity had lower serum iron (5.3 µmol/L vs. 7.9 µmol/L) and ferritin (7.8 ng/mL vs. 11.6 ng/mL), more frequent mucosal atrophy (59% vs. 19%), and higher prevalence of* H. pylori *(77% vs. 46%).*

Histological analysis showed significant reduction of parietal cells in the low-acidity group. These findings indicate that functional and structural gastric mucosal changes contribute to impaired iron absorption in IDA, highlighting the importance of gastric assessment for optimizing treatment.

Keywords: *iron deficiency anemia, gastric mucosa, hypoacidity, atrophic gastritis, Helicobacter pylori, iron absorption.*

Introduction. Chronic iron deficiency anemia (IDA) is one of the most common hematological disorders worldwide. In addition to systemic manifestations, IDA is often associated with functional and structural changes of the gastric mucosa [1, 2]. Reduced gastric acidity, mucosal atrophy, and *Helicobacter pylori* infection may impair iron absorption, contributing to persistent anemia [3, 4]. Understanding the functional state of the gastric mucosa in IDA patients is essential for improving diagnosis and optimizing treatment. Therefore, the aim of this study was to evaluate the functional and structural condition of the gastric mucosa in patients with chronic iron deficiency anemia and to investigate its association with iron metabolism parameters and *H. pylori* infection.

Materials and methods. A total of 48 patients with confirmed chronic IDA (hemoglobin <120 g/L in women, <130 g/L in men; ferritin <15 ng/mL) were examined. Patients were divided into two groups based on gastric acidity measured by pH-metry:

— Group 1 (n = 26) – preserved gastric acidity (pH ≤ 3.5)

— Group 2 (n = 22) – reduced gastric acidity (pH > 3.5)

All patients underwent complete blood count, serum iron profile (iron, ferritin, TIBC), esophagogastroduodenoscopy (EGD) with biopsy, histological evaluation, and rapid urease test for *H. pylori*.

Results. Among 48 patients, 26 (54.2%) had normal gastric acidity, while 22 (45.8%) showed reduced acidity. Patients with low gastric acidity demonstrated worse iron status: average serum iron was 5.3 µmol/L, compared to 7.9 µmol/L in patients with preserved acidity. Similarly, average ferritin was 7.8 ng/mL in the low-acidity group versus 11.6 ng/mL in the normal-acidity group. Endoscopic examination revealed chronic gastritis in 42 patients (87.5%). Gastric mucosal atrophy was more frequent in patients with reduced acidity (59%) than in those with normal acidity (19%).

Histological analysis confirmed a moderate to severe decrease in parietal cells in 68% of patients with hypoacidity, while only 23% of patients with normal acidity showed mild changes. *H. pylori* infection was detected in 29 patients (60.4%), with higher prevalence in the low-acidity group (77%) compared to the normal-acidity group (46%).

Overall, these findings indicate that patients with chronic IDA often have structural and functional gastric mucosal changes, particularly those with reduced acidity. Mucosal atrophy, parietal cell reduction, and *H. pylori* infection are associated with poorer iron absorption and lower iron stores [5].

Conclusion. Chronic iron deficiency anemia is frequently accompanied by significant functional and structural abnormalities of the gastric mucosa. Assessment of gastric secretion and mucosal integrity is essential for optimizing diagnosis and therapy, improving iron absorption, and enhancing treatment effectiveness in IDA patients.

References

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