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THE ORAL IRON ABSORPTION TEST IN PATIENTS WITH HIATUS HERNIA

N. Behmard¹, I.A. Tarasova^{1,2}, A.L. Shestakov^{1,2}

¹*I.M. Sechenov First Moscow State Medical University*

²*Petrovsky National Research Centre of Surgery, Moscow*

✉ behmardnima3@gmail.com

Abstract

An evaluation of the use of the oral iron absorption test was performed in patients with hiatal hernia before and after surgery.

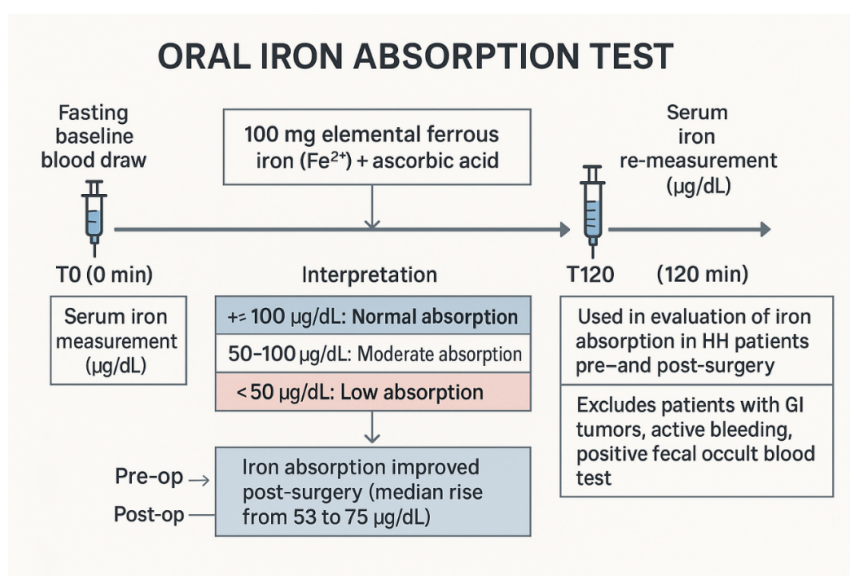
Introduction

Hiatus hernia (HH), mostly paraesophageal, are associated with chronic iron-deficiency anemia. Main hypothesis is chronic blood loss via esophageal and stomach mucus erosions and diapedesis bleeding which are resulted in iron deficiency anemia. Also this the patients with HH receive prolonged antisecretory therapy with proton pump inhibitors (PPI) which can influence the iron absorption too [1]. In the study by F. Panzuto et al. (2004) no improvement in the course of anemia was observed after HH repair and PPI therapy for gastroesophageal reflux, compared with the use of PPI alone [2]. Other studies also report a low effect of conservative therapy without surgical correction of hiatal hernia [3, 4].

We hypothesises that patients with HH may have abnormal iron absorption due to HH. An iron absorption test, most referred to as the Oral Iron Absorption Test (OIAT), is used to evaluate how well the body absorbs iron from the gastrointestinal tract. This test is helpful in diagnosing iron deficiency anemia, iron malabsorption, or determining the best treatment approach (oral versus intravenous iron therapy). The aim of our pilot study was to evaluate the iron absorption in patients with HH with OIAT (see figure).

Materials and methods

A pilot study included 20 patients with hiatal hernias who underwent surgical treatment in the Department of Thoracoabdominal Surgery and Oncology: 16 patients with HH type 1, 1 — with type 2, and 3 with type 3. All patients underwent an oral iron absorption test both preoperatively and one month after surgery. Exclusion criteria were gastric and intestinal tumors, a history of gastrointestinal bleeding confirmed by endoscopy, and/or a positive fecal occult blood test. Additionally, female patients were referred for a gynecological consultation to rule out gynecological diseases. Blood samples are obtained before iron administration (baseline) and at intervals after ingesting 100 mg elemental



Graphical abstract. The iron absorption in patients with hiatus hernia with Oral Iron Absorption Test

Fe²⁺ in combination with ascorbic acid on an empty stomach, measuring serum iron at around 2 hours (120 minutes) post-dose a serum. Iron increase above 100 µg/dL suggests normal absorption capacity, 50–100 — moderate and less than 50 — low. The primary point was failed (less than 100) or normal iron absorption. Secondary points include hemoglobin level before and after operation, PPI therapy, and HH types. Differences were considered statistically significant when $p < 0,05$.

Results

The mean age of the patients was 53.2 ± 12.47 years. There were 7 men and 13 women. Seventeen patients received PPI therapy before surgery and 12 after, $p = 0.894$. An erosive process was detected in 8 patients: 5 with esophageal erosions and 3 with gastric erosions. No correlations were found between the performed therapy, type of hernia, presence of erosive lesions, and OIAT results. In 10 patients, low iron absorption (failed OIAT) was noted before surgery; after surgery, iron absorption levels in all patients exceeded 50 µg/dL, with no cases of low absorption observed postoperatively, $p = 0.002$. The mean preoperative hemoglobin level was 129 ± 13 g/L; the median iron absorption level before surgery was 53 [38.75; 98.5], which increased after surgery to 75 [49.5; 101.75] µg/dL, $p = 0.002$.

Conclusion

An oral iron absorption test (OIAT) is a straightforward method for assessing iron absorption in patients with hiatal hernia (HH). To our knowledge, this study is among the first to objectively evaluate iron absorption in HH patients using the OIAT. Our results demonstrate that iron absorption is reduced in patients with HH and significantly improves following surgery. Based on these findings, we suggest that surgical treatment should be considered for patients with HH-associated iron deficiency anemia.

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