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Systematic Review of the Literature on the Best Course of Treatment In Patients With Iron Deficiency Anemia With Active Helicobacter Pylori Infections

Alaa Etouni, M.S. in Physician Assistant Studies

Faculty Advisor: Margaret Ewen, M.S., PA-C

ABSTRACT

Iron deficiency Anemia (IDA) is the most common nutrient deficiency in the world. The most common cause of IDA worldwide is chronic gastrointestinal bleeds, which are primarily caused by the pathogen Helicobacter Pylori (H.pylori). H.pylori may lead to micro bleeding and might affect iron uptake depleting iron stores in persons with IDA. This study aims to investigate if the eradication of H.pylori is more efficacious in treating IDA than using iron supplementation alone in adult patients with an active H.pylori infection. A systematic review was performed looking at three studies: experimental study, prospective therapeutic, and case-control. Outcomes analyzed were hemoglobin, serum iron, and serum ferritin levels. All three studies showed a strong correlation between the eradication of H.pylori and the resolution of IDA, supporting the hypothesis that H.pylori eradication is more efficacious in managing IDA than iron supplementation alone. These findings are clinically significant because it could help medical providers look for potential H.pylori infections in patients with unexplained IDA; by eradicating H.pylori and treating the underlying cause, iron deficiency anemia may resolve without supplementation.

INTRODUCTION

- **Two mechanisms underlying association between IDA and H.pylori:**
 - H.pylori competes for dietary iron
 - Decreased iron absorption is caused by gastric hypochloridria leading to reduction of non-heme iron from the ferric to ferrous form
- **Risk factors associated with H.pylori infections:** Unsatisfactory hygiene, dense population, intake of undercooked food from streets, impure water availability, smoking and smokeless tobacco
- **Study objective:** Investigate if the eradication of H.pylori is more efficacious in treating IDA than using iron supplementation alone in adult patients with an active H.pylori infections.

APPROACH

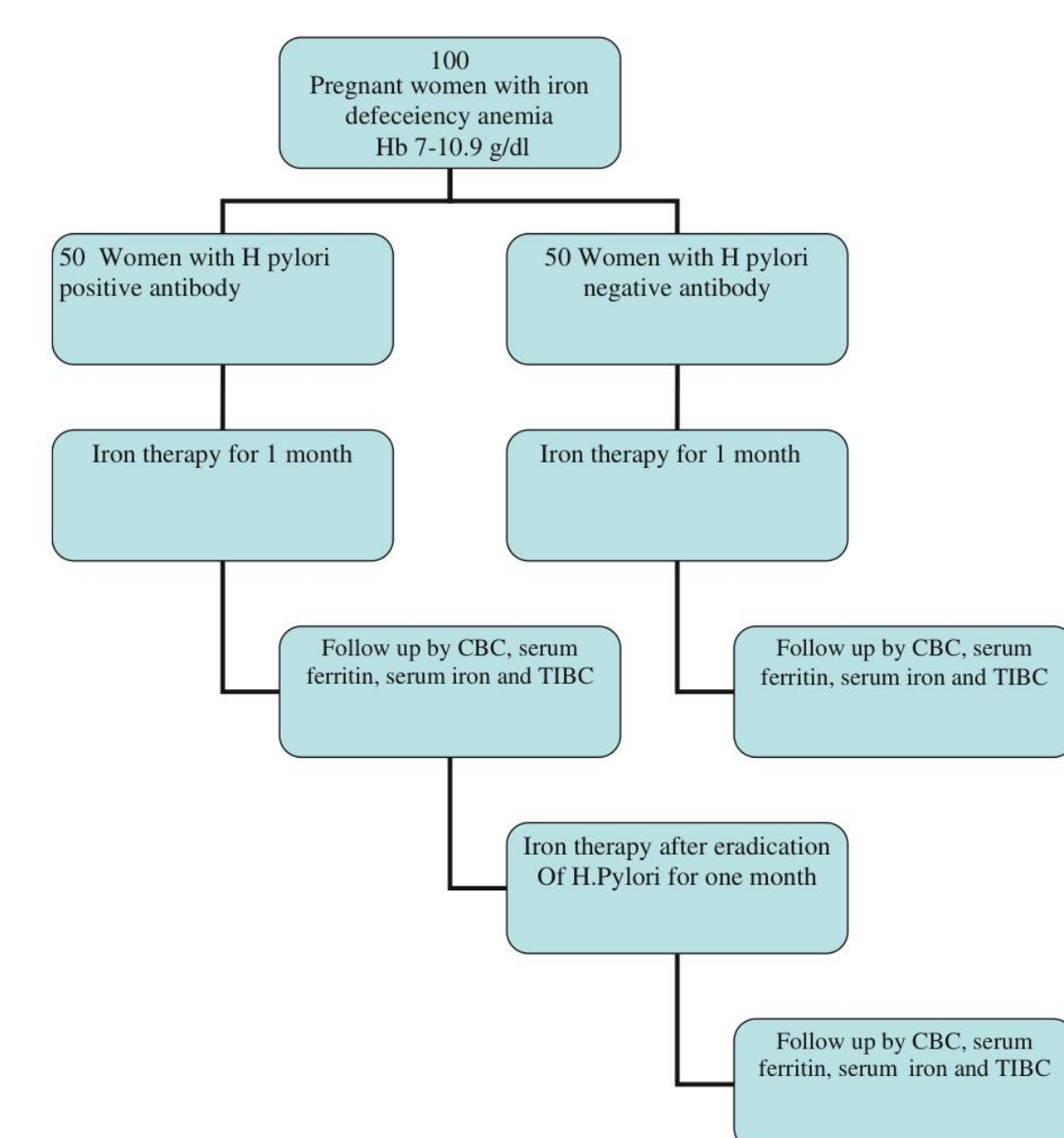
- A review of the literature was conducted to evaluate the effectiveness of H.pylori eradication in reversing IDA in adults who have tested positive for H.pylori versus the administration of iron supplementation alone. The intervention assessed was the eradication of H.pylori versus iron supplementation only.
- Primary end points: Hemoglobin level, serum iron, and serum ferritin.
- Databases available through the Yeshiva University library: Medline-PubMed and Google Scholar.

APPROACH, Cont.

- Search terms used in google scholar: iron supplementation in patients with H.pylori, H.pylori with IDA treatment.
- Search terms used in Medline-PubMed: H.pylori eradication iron deficiency.
- Studies included: Experimental studies, case-control studies, and prospective therapeutic studies.
- Literature search: Peer-reviewed journal articles published within the last 10 years (2013-2023).

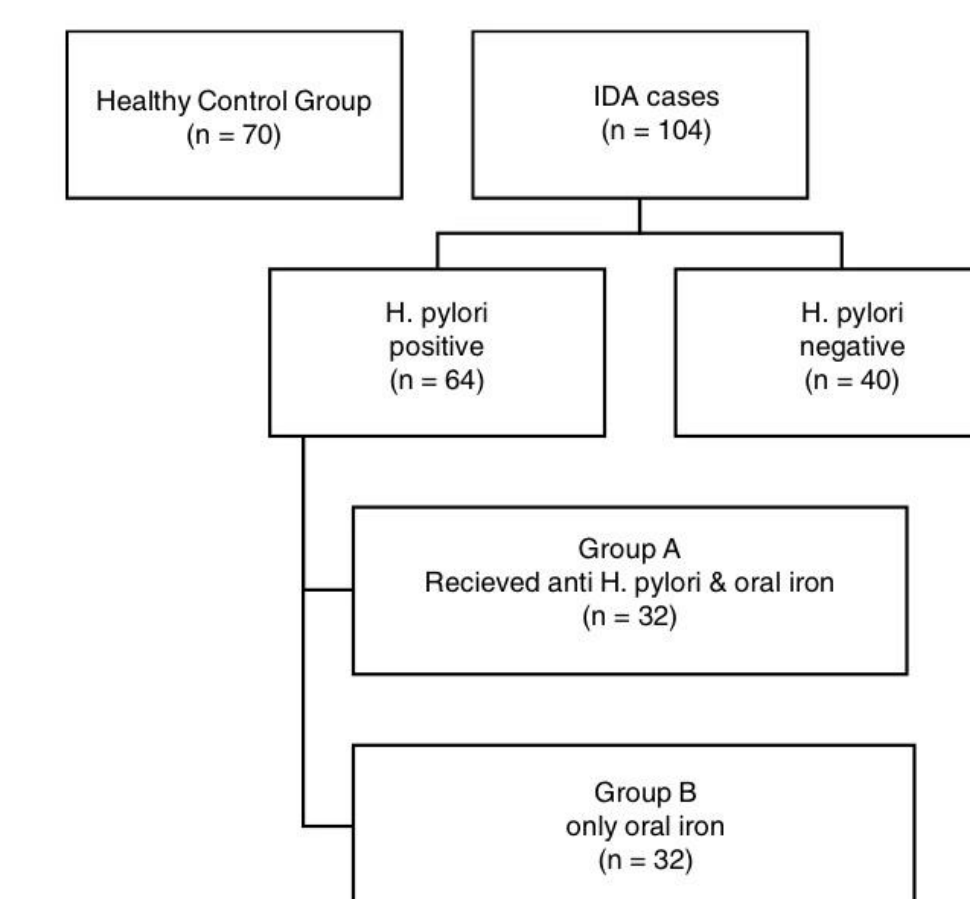
FINDINGS

Nashaat et.al (2013)-experimental
The results revealed that the response to iron supplementation in patients without H.pylori was better than those who were infected with H.pylori (p<0.001). There was also a significantly higher response to the iron therapy in group A after eradication therapy (no p values reported).

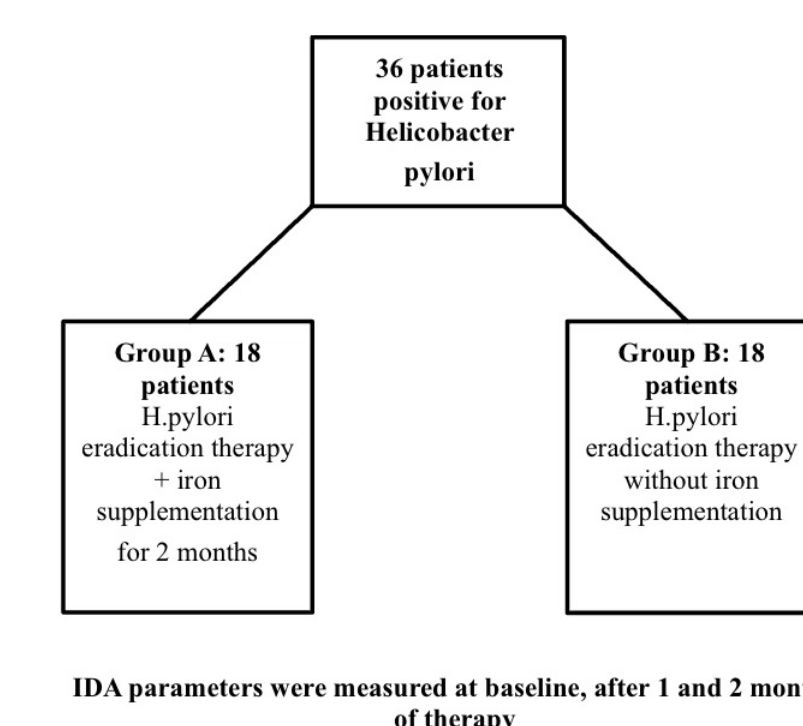


FINDINGS, Cont.

Demerdash et al. (2018)-case-control study
Group A showed statistically significant improvements in the hemoglobin levels, MCV, MCH, serum iron and ferritin after 3 months of therapy, while Group B showed no improvements for any of the parameters. These results reveal that Group A had a significant difference in hemoglobin levels after eradication versus Group B, which took the iron supplementation regimen.



Shatla et al. (2016)-prospective therapeutic
Both groups showed a statistically significant increase in mean hemoglobin, serum iron, and serum ferritin levels from the baseline to month, and from 1 month to 2 months. Eradication of H.pylori in addition to iron supplementation was associated with faster and better recovery from IDA compared with eradication therapy alone.



DISCUSSION & RECOMMENDATIONS

Conclusion: Eradication of H.pylori infection is more efficacious in the recovery of IDA than the use of iron supplementation alone.

Limitations: Papers selected included patients from Egypt and Saudi Arabia which is limited to the Middle East region. Results might not apply to the population outside of the Middle East.

Strengths: It was beneficial to see the findings were consistent in a more developed, Saudi Arabia, versus a less developed country, Egypt. Articles selected had appropriate set ups, limiting confounding factors.

Future research: Investigate the resistance of H.pylori in some patients which may hinder the management of IDA. New research can also look at the correlation of IDA and H.pylori following the new standard of care, Bismuth quadruple therapy (Proton pump inhibitor, tetracycline, metronidazole, and a bismuth salt).

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