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Review Article

**REVIEW ARTICLE: RISK OF GASTROINTESTINAL
BLEEDING WITH LOW DOSE ASPIRIN EXPOSURE IN
DIABETIC PATIENTS.****Dr. Upendra N¹, Prof. J S Venkatesh², Blessy Saji³, Blessy⁴, Aswathy S Sasidharan⁵,
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Article Received: November 2022 **Accepted:** December 2022 **Published:** January 2023**Abstract:**

Our aim was to assess the risk of gastrointestinal (GI) hemorrhage associated with diabetes among patients taking low dose aspirin. As Aspirin is commonly used for treatment to migraine, pain, fever, or colds, and also for the prevention of cardio- and neurovascular disease, it's necessary to investigate the possible risk that an individual can have with its usage. Our study shows that people using low doses of aspirin had a higher risk of GI bleeding in patients with diabetes than those without diabetes. Hence, when treating diabetics with aspirin, the increased risk of GI hemorrhage should be taken in consideration.

Keywords: low dose aspirin, gastrointestinal hemorrhage, Diabetes Mellitus, Risk Factor

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INTRODUCTION:

Aspirin is a medication that is frequently used to treat headaches, discomfort, fever, and colds as well as to prevent cardiovascular and neurovascular diseases.^{1,2} The use of aspirin in all patients with coronary artery disease has been recommended by the American Heart Association (AHA), the American College of Cardiology Foundation (ACCF), and the European Society of Cardiology (ESC).³⁻⁵ “low-dose aspirin” is defined based on the North American formulation of single analgesic-strength tablets.⁶ Most of the physicians recommend 100 mg tablet or less as maximum daily dosage for treatment of various conditions as long-term therapy with aspirin is reported to carry a risk of gastrointestinal (GI) adverse effects, including ulceration and bleeding.⁷⁻⁹ According to a metaanalysis research by Derry, GI hemorrhage occurred in 2.47% of patients who used aspirin long-term compared to 1.42% of individuals who took a placebo, and there is no indication which shows that lowering the dose or utilizing modified release formulations would lower the risk of GI hemorrhage.¹⁰ Aspirin may cause GI bleeding by preventing platelet aggregation and having systemic effects on the mucosal epithelial and endothelial cells, which slows down cell growth and migration.¹¹

RISK FACTORS FOR UPPER GI BLEEDING:

Numerous studies have examined the risk factors for upper GI haemorrhage when using NSAIDs other than aspirin. The traits that are most frequently observed are

- prior GI events;
- older age;
- use of anticoagulants such warfarin;
- use of corticosteroids; and
- increasing dose or multiple NSAIDs (for example, NSAID plus aspirin).¹²

Since, there is a dearth of information evaluating these risk variables specifically among low-dose aspirin users, and very little of it originates from assessments of randomized controlled trials.

SUMMARY:

According to a cohort research, DM patients with aspirin user, were found to be a unique risk factor for upper GI bleeding.¹³ Aspirin use was associated with a higher risk of significant bleeding in the majority of the subgroups studied, but not in people with diabetes, according to another cohort study.¹⁴ Consequently, in this work, we carried out a systematic review to find publications appropriate for GI bleeding was found in a meta-analysis of aspirin users with or without diabetes. According to the

study, DM raises the risk of GI bleeding in people on low-dose aspirin. Similar findings from sensitivity analysis of research quality are related to the rise in GI bleeding.

DM is associated with a hypercoagulable state¹⁵; however, some cohort study showed that DM results in increased GI bleeding risk even without taking aspirin.¹⁴ Therefore, DM and aspirin might be two individual risk factors contributing to GI bleeding but DM may also enhance the mechanism by which aspirin causes GI bleeding. As Aspirin induces prostaglandin depletion and damages the gastric epithelial cell barrier, the repairment of these cell barrier requires sufficient microcirculation, which will be interrupted in DM patients.¹⁶ So while treating patients with DM, the risk of GI bleeding should be taken into account. It is recommended that patients receiving aspirin should be strongly considered for test-and-treat approach. In other words, an alternative medicine for aspirin may seem straightforward.

CONCLUSION:

As Aspirin is commonly used for treatment to migraine, pain, fever, or colds, and also for the prevention of cardio- and neurovascular disease, it's necessary to investigate the possible risk that an individual can have with its usage. Our study shows that people using low doses of aspirin had a higher risk of GI bleeding in patients with diabetes than those without diabetes. In conclusion, when determining whether low-dose aspirin is appropriate for an individual patient, the risk of clinical events such as GI bleeding must also be weighed against the cardiovascular benefit. In cases where the risk of a cardiovascular event is moderate or high based on prior cardiovascular events or an increased cardiovascular risk score, the benefits of treatment are expected to outweigh the risk. In patients with low cardiovascular risk, the use of lowdose aspirin may be anticipated to cause an excess of GI events.

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