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Original Research Article

The Effect of Continuing Aspirin at a Low Dose in Peptic Ulcer Bleeding

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Abstract

Introduction: Aspirin was once used to reduce swelling and pain, but because of its capacity to prevent blood vessels from clotting, this application has now changed. Many studies have found that patients who get a combination of antiplatelet drugs are more prone to experience gastrointestinal bleeding. Asymptomatic ulcers are nevertheless a major problem since they can injure the GI tract permanently even though they are commonly spotted and acknowledged. In particular, among the elderly population, aspirin use has increased to treat cardiovascular and brain conditions.

Aims and Objectives: To find out the significance of aspirin therapy at lower dosage in cases of peptic ulcer disease.

Methods: This randomized study was done on patients of peptic ulcer. 2 groups were made and one group received aspirin at lower dosage while another did not receive anything. After fixed time interval, both the groups were analysed for recurrent bleeding, complications, mortality rate, and many more parameters.

Results: In this study, it was found that recurrent bleeding was found to be significant in aspirin therapy group as compared to placebo group ($p<0.05$). Again, the study found that the mortality velocity was significantly lower in aspirin group than placebo group ($p<0.05$). Also, 15.3% of patients reported gastrointestinal bleeding while being treated for other medical conditions. Eight causes of recurrent bleeding in aspirin-using individuals came from duodenal ulcers, whereas one case was caused by stomach ulcers. Only duodenal ulcers were the known source of confirmed recurrent bleeding in the placebo group.

Conclusion: The study has concluded that aspirin at low dosage causes recurrent bleeding significantly but decreases the mortality rate in the long run.

Keywords: Ulcer, Peptic Ulcer, Recurrent Bleeding, Aspirin

Introduction

Over six million people in the US alone are diagnosed with peptic ulcer disease (PUD), which has been the main cause of illness and death over the 20th to 21st centuries [1]. Due to an increase in the use of "nonsteroidal anti-inflammatory medicines" (NSAIDs) and "aspirin", which are the reason for producing ulcers, ulcers are believed to be the most frequent reason for upper gastrointestinal (GI)

bleeding hospitalizations [2]. Ulcers also continue to be a significant clinical concern. The stomach, jejunum, and duodenum are where PUD-related ulcers most frequently appear, with gastric ulcers being the most frequent type [3].

Even though ulcers are frequently detected and recognized, asymptomatic ulcers are still a serious issue since they can permanently harm the GI tract [4]. The etiology and pathophysiology of ulcers are now well known, and the methods for treating them have changed ever since the discovery of H. pylori [5]. The idea that ulcers are caused by an acid-driven process has been replaced with the knowledge that H. pylori and aspirin are both significant causes of ulcer development. The risk of PUD may be increased by combined infection with H. pylori and NSAID (including aspirin) use, which are both linked to severe GI symptoms ranging from mild dyspepsia to catastrophic GI haemorrhage [6,7].

Aspirin has become more widely used to manage cardiovascular and cerebral illnesses, particularly in the older population, however it increases the risk of dose-related peptic ulcer bleeding by two to three times [8,9]. Aspirin was first used to alleviate inflammation and pain but because of its ability to inhibit the clotting of blood vessels, it has developed into a popular treatment for preventing cardiovascular diseases [10]. Compared to the same dose of plain aspirin, buffered and enteric-coated aspirin does not appear to be any safer. It is impossible to establish intolerance to aspirin's gastro pathic effects [11]. It is common for aspirin-induced ulcers to develop without gastrointestinal symptoms. Peptic ulcer disease and its sequelae are more likely to affect elderly patients who tested positive for Helicobacter pylori infection [12]. Receivers of aspirin and non-aspirin antiplatelet medications, such as clopidogrel, both carry a risk of upper gastrointestinal haemorrhage. Gastrointestinal bleeding is more likely to occur in patients who are given a combination of antiplatelet medications [13].

“H2-receptor antagonists” and “Proton-pump inhibitors” are two antisecretory treatments that offer some protection from upper “GI bleeding” in antiplatelet patients; the risk decrease is larger with “proton-pump inhibitors”. The standard practice when individuals arrive with “peptic ulcer bleeding” is to stop the usage of aspirin or other antiplatelet medications until the “ulcer heals”, manage the “active haemorrhage” with an “endoscopic device”, and provide antisecretory therapy. When antiplatelet medications are stopped, there is a risk for cerebrovascular and cardiovascular events as well as mortality [14-17].

The diagnosis of ulcers is accompanied by a number of signs, such as “epigastric pain”, bloating, “fullness”, premature satiety, nausea, and weight loss. Evaluation is made more difficult in some cases when these signs are linked to other conditions such as “gastroesophageal reflux disease”, gastritis, or nonspecific “dyspepsia”. A GI bleed may show clinically before asymptomatic ulcers are discovered [18,19].

Materials and methods

Study design

This randomized, “placebo-controlled” research study was performed on 100 patients from July 2021 to August 2022 who participated in this study in which both patients and physicians both were oblivious of the therapy allocation to prevent bias. Within 24 hours of the commencement of upper “gastrointestinal bleeding”, an endoscopy was performed on all patients. Thermal coagulation and epinephrine injection were both used as endoscopic treatments. In order to screen for H. pylori infection utilizing a fast urease test and histologic results, biopsy samples from the antrum and corpus were

taken. Pantoprazole was given as an intravenous bolus injection to all patients, followed by a 72-hour infusion at a rate of 8 mg/h.

Inclusion and exclusion criteria

Patients qualified for the study if they had a "peptic ulcer" with "active bleeding", adherent clots, and "visible blood vessels" had responded well to "endoscopic" treatment, and still needed to take "low-dose aspirin" (325 mg/d) for cardiovascular disease prevention. Patients who gave informed consent and follow up on the study protocol are included in the study.

The study excludes patients with failed "endoscopic hemostasis of bleeding ulcers", "ulcer perforations", known acuity to "proton-pump inhibitors", prior "partial gastrectomy", "vagotomy", concurrent usage of anticoagulants, "nonsteroidal anti-inflammatory drugs", corticosteroids, pregnancy, noncompliance with the study's protocol, and refusal to provide informed consent.

Statistical analysis

The study operated the "Kaplan-Meier" analysis to calculate the probability of achieving the future goal of "recurrent upper gastrointestinal bleeding" within 30 days (all sick people who had obtained at least 1 dose of analysis medication) of therapy. In order to compare the two groups for combined cardiovascular, gastrointestinal mortality, and cerebrovascular within 8 weeks, we also utilized the Kaplan-Meier method. The "t-test", "Mann-Whitney U test", "chi-square test", and "Fisher exact test", if applicable, were used to perform statistical analysis on demographic information and secondary endpoints. SPSS 25 was used for all of our analyses.

Ethical approval

The authors gave the patients a thorough explanation of the analysis. Written approval was received per patient. The ethical committee of the hospital has approved the study's methodology.

Results

With regard to demographic features, the two groups were comparable. More than 87% of patients showed medication compliance of 90% or higher. Approximately 15% of individuals experienced gastrointestinal bleeding while receiving treatment for other medical issues in hospitals. Table 1 shows that the patients were grouped equally among two groups placebo and aspirin groups.

Table 1: Characteristics of participants

Characteristics	Aspirin group (n= 50)	Placebo group (n= 50)
Males n (%)	31 (62)	32 (64)
Mean age (SD)	35 (12)	35 (11)
Usage of alcohol, n (%)	4 (8)	4 (8)
Currently a smoker, n (%)	4 (8)	7 (14)
American society of anesthesiologists grade		
1	0	0
2	43	50
3	34	26
4	1	2
5	0	0
Indicated for aspirin use, n (%)		
Cardiovascular	26 (52)	30 (60)
Cerebrovascular	15 (30)	19 (38)
Both	6 (12)	6 (12)

Previous NSAID use, n (%)	8 (16)	9 (18)
Helicobacter pylori positive, n (%)	20 (40)	22 (44)
Previous ulcer bleeding, n(%)	7 (14)	7 (14)
Mean baseline hemoglobin level (SD), g/dL	9.5 (2.7)	8.6 (2.4)
Bled during a hospital stay, n (%)	8 (16)	7 (14)
Location of bleeding ulcer, n (%)		
Gastric ulcer	28 (56)	26 (52)
Dieulafoy lesion	1 (2)	2 (4)
Duodenal ulcer	22 (44)	23 (46)
Endoscopic stigmata of bleeding, n(%)		
Visible vessel	23 (46)	20 (40)
Active bleeding	16 (32)	18 (36)
Adherent clot	12 (24)	12 (24)
Mean size of ulcer (SD), cm	1.4 (0.9)	1.4 (0.7)
Ulcer ≥ 2 cm, n (%)	10 (20)	11 (22)

In this study, it was found that recurrent bleeding was found to be significant in the "aspirin therapy" group as compared to the "placebo group" ($p<0.05$). Again, the study found that the mortality rate was quite lower in the "aspirin group" than in the "placebo group" ($p<0.05$).

The study found that 22 cases of recurrent bleeding of the upper gastrointestinal were examined for this study. Twelve incidences of confirmed recurrent bleeding were found by the committee; six occurred in the "aspirin group" and three in the "placebo group". One incidence of demonstrated "recurrent bleeding" among aspirin-taking patients was from a "stomach ulcer", while eight cases resulted from duodenal ulcers. In the placebo group, duodenal ulcers were the only known cause of confirmed recurrent bleeding (table 2).

Table 2: Introductory and secondary future points

Endpoint	**Aspirin group (n= 50)**	**Placebo group (n= 50)**	***p*-value**
Suspected cases of recurrent bleeding in 30 d, n (%)	9 (18)	6 (12)	0.047
Confirmed cases of recurrent bleeding in 30 d, n(%)	6 (12)	3 (6)	0.045
duodenal ulcer/gastric ulcer, n/n	8/1	5/0	0.557
Stigmata of recent hemorrhage, n			
Bleeding actively	4	4	0.077
vessels that is visible	3	1	
Adherent clot"	4	0	
Median units of blood transfused" (range), n	2 (0 to 11)	3 (0 to 10)	0.095
Surgery, n (%)	0 (0)	1 (2)	0.088
Median hospital stay (range), d	5 (3 to 26)	4.7 (1 to 46)	0.067
Mortality, n (%)			
30 d	1 (2)	5 (10)	0.023
56 d	1 (2)	6 (12)	0.029
Causes of death, n			
Cardiovascular causes	1	6	0.091
Due to Gastrointestinal causes or excessive bleeding	0	4	
Incidence of Pneumonia	0	3	

Discussion

Recently, a study was carried out. to ascertain whether there is a connection between current non-aspirin NSAID use and deadly upper gastrointestinal haemorrhages or peptic ulcers. The results of the study count to the mounting data that NSAIDs can raise the likelihood that elderly people would develop clinically severe peptic ulcer disease [20,21].

The purpose of this “retrospective cohort” study was to define the majority rate of major ulcer disease among “nonsteroidal anti-inflammatory drug” (NSAID) users and nonusers. By NSAID direction type, usage period, and everyday dose, ulcer hospitalization rates were calculated. Hospitalization for ulcers is overrepresented among senior NSAID users. Elderly patients should utilize these medications with caution, and NSAID treatment alternatives should be seriously evaluated [22].

No epidemiologic studies have been carried out to estimate the threat of gastrointestinal tract haemorrhage in older individuals who use oral anticoagulants and nonsteroidal anti-inflammatory medications (NSAIDs) concurrently. Since “Nonsteroidal anti-inflammatory drugs” and “oral anticoagulants” raise the hazard of “haemorrhage peptic ulcer disease” by about 13 times, NSAIDs should only be provided to patients who are already receiving anticoagulation therapy [23].

The risk of peptic ulcers and upper gastrointestinal haemorrhage has been linked to nonsteroidal anti-inflammatory medicines (NSAIDs). However, published studies have primarily focused on the elderly, have not compared rates for different types of NSAIDs, and have not addressed outpatient disease rates. In a study, incidence rates of upper gastrointestinal bleeding and peptic ulcers were compared in 68 028 adults under the age of 65 who took diclofenac sodium, piroxicam, sulindac, or naproxen and belonged to a network of maintenance of health organisations. In order to identify cases, we looked at automatic insurance claim data and medical records. We also considered diseases that were treated as outpatients. While maintaining the specificity of case determination, using automatic claims documents and an examination of medical data improves efficiency. The study's findings, which were treated as outpatients in 58% of the cases, were in line with those of other studies that had previously been published and relied on inpatients. Within the bounds of statistical mistakes, the incidence velocities of upper gastrointestinal bleeding and peptic ulcer for each NSAID under investigation seemed comparable [24]].

Upper gastrointestinal bleeding (UGB) and nonsteroidal anti-inflammatory drug (NSAID) use have been causally linked. The majority of risk factor literature has compared the relative risks in different patient categories, such as men against females, senior versus young, and so on. However, from a practical, clinical perspective, only the excess risk offers an accurate, reliable way to gauge the significance of risk factors. The study's objectives were to characterize the NSAID use pattern and identify the additional risks in patient subgroups. An unfavourable outcome of NSAID therapy is linked to a history of peptic ulcer, which should be considered a close contraindication. Besides the substantial impact of advanced generation was presented. Male sex and brief benefit are insignificant threat factors. Without changing the total use of NSAIDs, it is likely possible to lower the prevalence of UGB caused by NSAIDs [25,26].

Conclusion

The study has concluded that aspirin at low dosage causes recurrent bleeding significantly but decreases the mortality rate in the long run. More than 87.1% of

patients had 90.2% or better compliance to aspirin therapy.

In hospitals, In conclusion, ongoing aspirin medication may raise the danger of "recurrent bleeding" in sick people with "peptic ulcer bleeding" who received low-dose aspirin. Antiplatelet medications, however, may lower overall mortality. The benefit of "proton pump inhibitors" with low-dose aspirin treatment should be considered in sick people with bleeding ulcers and cardiovascular disease.

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