

Aspirin Intake and Significant Post Extraction Bleeding – Are They Related?

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ABSTRACT

Introduction: Anti-platelet therapy is indicated for patients mostly for various cardiovascular conditions. It is not uncommon for such patients to present with dental problems requiring extraction. Continuing anti-platelet therapy pre and post extraction will theoretically increase the risk of haemorrhage while discontinuing increases the risk of life threatening thromboembolic events. This study was thus aimed to compare the amount of post extraction bleeding if aspirin is not stopped as compared to medically fit patients.

Material and methods: In this article two groups one taking aspirin for some heart condition and another group with no significant medical history were chosen. Patients of the groups needed extraction of one of their lower molar tooth. Post extraction bleeding was compared between the groups.

Results: No significant difference of postextraction bleeding was seen between the group taking aspirin and those who were medically fit. Though in the aspirin taking group bleeding was more but not significant.

Conclusion: It was concluded that there was no need to stop aspirin in patients who need extraction of their teeth.

Keywords: Aspirin Intake, Significant Post Extraction Bleeding

INTRODUCTION

In 1982, Aspirin's ability to suppress prostaglandins and thromboxanes (PG's and TX's) was first discovered by nobel laureate and the british pharmacologist John Robert Vane.^{1,2} This suppression of the PG and TX production is by irreversible inactivation of the cyclooxygenase (COX). The other name of COX is (prostaglandin-endoperoxide synthase, PGES) enzyme required for PG and TX synthesis. The active site of the endoperoxidase enzyme occupied by serine residue is acetylated covalently by Aspirin. The other name of COX is (prostaglandin-endoperoxide synthase, PGES) enzyme required for PG and TX synthesis.

This irreversibly blockage of TXA₂ by low-dose aspirin in platelets, don't allow platelet aggregation.³ The effect of aspirin starts within 1 hour of ingestion and lasts for 7–10 days, that is, life span of a platelets.^{4,5} Aspirin with this antithrombotic property makes it useful for decreasing the incidence of myocardial accident in people who have had a previous myocardial infarction, unstable angina, transient ischemic attack or an ischemic stroke.⁶ Aspirin at a dose of 40 mg of a day inhibits a large portion of TXA₂ release acutely, with little effect on the prostaglandin I₂ synthesis. However further inhibition, needs higher doses of aspirin.⁷ Women aged 55–79 and men aged 45–79 should be encouraged to use aspirin to prevent CHD reads the March

2009 recommendations of USPSTF as the benefit of a reduction in cardiovascular accident for men or stroke in women outweighs harm of an increased chances of gastrointestinal hemorrhage.⁸ There was a 14% lower risk of death from any thromboembolic event and a 25% lower risk of death from CHD in female users as confirmed by the WHI study when a low dose (75 or 81 mg) aspirin was used on daily basis. Also a lower doses (75 or 81 mg/day) of aspirin were helpful for long-term prevention to optimize efficacy and safety in people needing it.⁸

In a meta-analysis of 287 studies where total of 135,000 patients were studied there was a reduction of 20–25% thrombo embolic events and overall 12% reduction in mortality rate in the first few years of use of aspirin.⁹ Other studies and publications reported that antiplatelet treatment has reduced the overall mortality of vascular disease by 15% and nonfatal vascular complications by 30%.¹⁰

However when platelets activity is altered, a longer time period is required to stop bleeding from a cut surface because of alteration in primary hemostasis mediated by platelet plug formation. Burger et al. reviewed 474 studies regarding the impact of low-dose aspirin on surgical blood loss. They stated that, in patients on aspirin, the average risk of intraoperative bleeding increases by a factor of 1.5.¹¹ Therefore, traditionally it is recommended to stop aspirin therapy 7–10 days prior to invasive surgical procedure.^{12–16}

So to keep the benefit risk ration on higher side a balance between risk of increased bleeding and risk of thromboembolic events has to maintained. On theoretical basis, whether aspirin should be stopped or continued increases thromboembolic event risk or an increased episodes of bleeding respectively.

This study will try to find this balance based on the clinical evidence not solely on theoretical backgrounds, based on the latter part of the sentence i.e. continuing aspirin. Also, applying the information from studies from different specialty surgical procedures with different degrees of invasiveness as compared to tooth extraction can be detrimental to patient's health. Also there is paucity of literature on this subject in

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dental patients undergoing minor oral surgeries. Thus the current study gives an edge to decide on whether to stop aspirin or not in such patients requiring dental extraction.

MATERIAL AND METHODS

This study involved 80 patients who were referred to the exodontia Department of Oral and Maxillofacial Surgery at the Govt Dental College and Hospital, Srinagar, Jammu And Kashmir, for extraction of one of their lower molar tooth. These were divided into two groups of 40 each. One group taking aspirin and indicated for extractions of their lower molar. All of these patients (Cases) were on antiplatelet therapy with different indications as shown in table below. Another group of 40 patients (Controls) needing extraction of one of their lower molar were also studied who were on no drugs and medically fit. Criterias for selection of subjects were the following:

Inclusion Criteria for cases

- Patients in age group 35 to 88 needing extraction of one of their lower molar.
- Patients should be on antiplatelet therapy for various indications (Table 1).
- Non hypertensive patients.
- Patients taking drugs other than antiplatelets.

Exclusion Criteria for cases

The patients with congenital or acquired bleeding disorders with a potential for bleeding, a history of gastrointestinal bleeding or intracranial hemorrhage, patients with hematologic, renal, or liver disease; bone marrow disorders; alcoholism, or any concurrent medications affecting hemostasis were excluded from the study.

Criteria for controls: Medically fit patients indicated for extraction of their lower molars.

Method

The patients which met the criterias of the study were informed that the extraction will be carried without discontinuing antiplatelet drugs and a written informed consent was obtained for the same. The extractions were performed on patients on antiplatelet therapy with the advice not to discontinue the antiplatelet drug prior to or after extractions. At initial consultation, a past medical history, clinical examination were carried out and recorded. Extractions were carried out by a single operator under local anesthesia (lignocaine HCl solution 2% with epinephrine 1:80,000). Patients were instructed to bite on a moistened gauze pack for 45 minutes. Before leaving patients were asked to stay for half an hour before to evaluate for excessive bleeding. If bleeding occurred for more than 30 minutes after extraction, it was considered as prolonged immediate post-extraction bleeding. In such cases, hemocoagulase soaked resorbable gelatin sponge was used in the extraction socket and socket was sutured. In the event of any prolonged bleeding all patients were advised to report immediately. The conditions of the patients were enquired over phone in next 24 to 48 hours postextraction, and complaints of bleeding, if any were recorded. Sutures were removed after 7 days.

Post-operative bleeding was graded according to following scores with significant score as above 1 :17 These arbitrary grades were given as follows

1. Insignificant bleeding. Grade 0
2. Bleeding that continued >12 hrs of surgical procedure, Grade 1
3. Bleeding that makes the patient report back for management, Grade 2
4. Bleeding that results in large hematoma formation or ecchymosis, Grade 3
5. Bleeding that required blood transfusion. Grade 4

RESULTS

In this study, 52 male and 28 female patients in the age range of 35 to 88 years meeting the criterias were enrolled. 24 male and 16 female patients were on aspirin. Whereas 28 male and 12 female patients were on no drugs and having no

Medical problem for which aspirin taken	No. of patients
Post MI	10
AF	6
IHD	12
Angioplasty	9
MVR	3

Table-1: Indications for antiplatelet therapy

Gender	Aspirin group	Control group	P value
Male	24	28	0.9
Female	16	12	0.8

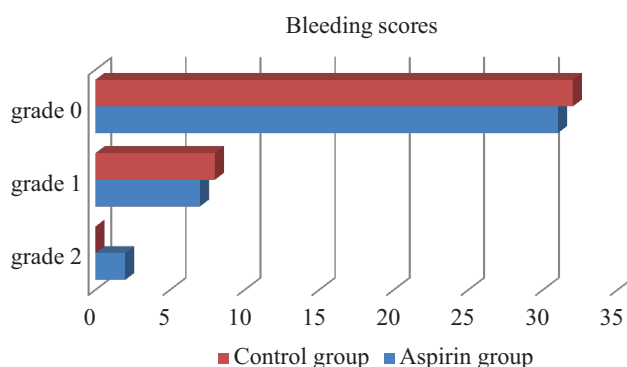
Table-2: Gender distribution for patients in whom extractions were indicated for periodontal problems

Age	Aspirin group	Control group	P value
range	35 - 88	35 - 78	>0.5
mean	55.7	58.55	>0.5

Table-3: Age distribution for patients in whom extractions were indicated

Bleeding score	Aspirin group	Control group	P value
Grade 0	31	32	>0.5
Grade 1	7	8	>0.5
Grade 2	2	0	>0.5

Table-4: Bleeding score.



Graph-1: Bleeding score among groups

significant medical problem. Gender and age distribution is shown in table 2 and 3.

Out of 40 cases 6 patients were on 150 mgs of aspirin and 34 on 75 mgs. Extractions were indicated in these patients for dental caries (88%) and periodontal problems (12%).

Prolonged intraoperative bleeding, at the time of extraction was seen in 10 patients among aspirin therapy group more significantly in those taking 150 mgs and in 3 patients among the control group. All prolonged bleeding complications were treated successfully with local hemostatic measures by placing resorbable gelatin (AbGel) in the extraction socket and sutures were placed.

There was no hemorrhagic complication seen in most of the patients in neither of the groups except for two patients in the aspirin group with grade 2 bleeding. Surprisingly more patients though statistically insignificant reported an ooze for more than 12 hours from the control group as shown in table 4 and graph 1.

DISCUSSION

Oral surgery patients having platelet function disorders due to drugs are always at risk of post op bleeding depending on the proposed surgical intervention, the nature and severity of platelet dysfunction, localization and extent of the extraction trauma. Also since the extraction site cannot be closed primarily the risk to allow adequate local haemostasis management is difficult. A severe haemorrhage and hematoma can place the patient's life in danger by causing obstruction of the airway.

Removing of all granulation tissues from chronic inflammatory sites, avoiding flaps, minimizing trauma, suturing, cauterization are among the various measures used to minimize the risk of perioperative and postoperative bleeding, and to achieve a good hemostasis.¹⁸ However in patients taking aspirin there are still chances of bleeding because of the platelet dysfunction.

And traditionally stopping aspirin 7–10 days prior to invasive surgical or dental procedure was recommended. However, the risk of a more severe thromboembolic event is evident from literature as stopping antiplatelet therapy is associated with a recovery of platelet function. Stopping aspirin, causes excessive TXA₂ activity and fibrinolytic activity decreases.¹² Also the likelihood of ultimately causing a fatal thromboembolic event like MI and stroke, due to platelet rebound phenomenon on sudden stoppage of aspirin therapy, thus creating a prothrombotic state is a proved fact in number of studies.^{12,19,20}

A meta-analysis involving a greater number of individuals (50,279) on the risks and health hazards of sudden withdrawal of aspirin confirmed a detrimental impact and ominous prognosis of recurrent cardiovascular events.²¹

The adverse consequences of arterial thromboembolism are much more serious, as approximately 20% of these episodes are fatal and 40% episodes can lead to serious permanent disability.²² In specific isolated circumstances, if stopping aspirin therapy is essential, it should be limited to 3 or fewer days. Risk of thromboembolic events increased considerably if aspirin therapy is discontinued between 4 and 30 days.¹⁹

Few studies on patients on aspirin therapy undergoing cardiovascular surgery stated that there is risk of increased bleeding.^{23,24} Studies in the orthopedic, otolaryngology, and cardiology literature have shown increased bleeding in patients taking antiplatelet drugs.^{23,25-27}

Few studies in the literature advocated stopping aspirin therapy prior to surgical procedure because of increased risk of bleeding.^{14,16,28} Interestingly, none of these studies are from dental literature. So what prompts a dental practitioner to stop aspirin when its benefits are so extensive? Is it just the fear of excessive and uncontrolled intraoperative and postoperative bleeding that prompts the dental practitioners to stop the aspirin before any invasive dental procedures. Our study though based on less number of patients clearly indicates that there is no need to stop aspirin prior to any invasive dental procedure. This is in agreement to the world literature. The excessive bleeding which may occur is quite controllable.

CONCLUSION

There is no need to stop aspirin in patients who are taking it as a blood thinner. Because there is more risk than benefit to the patient. Even if aspirin is continued and there is bleeding from the socket it is not that severe to cause a life threat but if aspirin is stopped it can lead to a life threatening cardiovascular event. So don't stop aspirin.

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