

MINOR ORAL SURGERY WITHOUT STOPPING THE DAILY LOW DOSE OF ASPIRIN THERAPY

Batoool Sajjad¹, Sehrish Choudhry², Sabeen Masood³, Zafar Abbas⁴, Hasham Aleem⁵, Syed Akbar Abbas Zaidi⁶

Correspondence

¹Batoool Sajjad, Assistant Professor,
Department of Altamash Institute of
Dental Medicine, Karachi

☎: +92-3323158493

✉: b_vazir@gmail.com

²BDS, Altamash Institute of Dental
Medicine, Karachi

³BDS, FCPS Resident (Operative
Dentistry and Endodontics), Altamash
Institute of Dental Medicine, Karachi

⁴BDS, MCPS (Oral Surgery), Assistant
Professor, Department of Oral
Medicine, Dow University of Health
and Sciences

⁵MDS Trainee, Lecturer, Altamash
Institute of Dental Medicine, Karachi

⁶Assistant professor, Dental Education
Department, Baharia University
Health Sciences, Karachi

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INTRODUCTION

Aspirin belongs to the NSAID (Non-Steroidal Anti-Inflammatory Drugs) group of drugs. Its chemical name is acetylsalicylic acid. It was the first NSAID and was synthesized in 1853. Aspirin is an anti-inflammatory, antipyretic, analgesic, and antithrombotic drug. The mechanism of aspirin acts is the irreversible inhibition (acetylation) of the enzyme "cyclooxygenase". Inhibition of the cyclooxygenase results in the decreased production of prostaglandins, and a decrease in the prostaglandins level help limit inflammation, reduce fever and pain and prevent platelet aggregation. Aspirin is known as a blood thinner because of its antithrombotic action. The antithrombotic activity of aspirin is due to the irreversible inhibition of thromboxane A₂. Thromboxane A₂ helps in the aggregation of platelets, and without thromboxane A₂, platelets cannot form a clot. Aspirin is therefore used in inflammation, fever and blood clotting disorders.¹ Aspirin is usually

administered orally for its beneficial effects in treating numerous diseases. Though aspirin is very effective in preventing the adverse effects of cardiovascular diseases, it also has some complications. Hypersensitivity is one of the main complications of the drug. Hypersensitivity to the medication ranges from a simple rash to angioedema or anaphylactic reaction. Patients with asthma or Other respiratory diseases are prone to experience worse complications such as bronchospasm and anaphylactic shock. Other complications of aspirin to worry about are bleeding complications. Aspirin can cause GI bleeding in patients with peptic ulcers or gastritis. It also increases the risk of intracranial bleeding. Aspirin is also associated with bleeding from gums and increased bleeding following a tooth extraction.² Due to the fear of bleeding complications, most health experts recommend stopping aspirin during dental extraction or any other minor surgical procedure. However, quitting aspirin can cause serious adverse effects in patients with cardiovascular diseases. Therefore, most dental

ABSTRACT**OBJECTIVES**

Patients with the low-dose long-term aspirin regime have a severe risk of excessive bleeding during surgery, placing them at risk of "adverse thrombotic events". This study aims to evaluate the bleeding in patients undergoing minor oral surgery procedures without stopping daily low-dose aspirin therapy.

METHODOLOGY

A descriptive cross-sectional hospital-based investigation involved the patient with minor oral surgery at "Altamash Institute of Dental Medicine, Karachi, Pakistan" from mid-April 2021 to mid-June 2021, who were between the age group 30 to 75 with a low-dose aspirin regime. The data was collected via a questionnaire to record the variables, i.e. duration of aspirin, postoperative medications, platelets count, clotting time, normal bleeding time, and intraoperative bleeding time.

RESULTS

51 patients, of which 32 were males while 19, were females. The normal bleeding time was comparatively analyzed with the intraoperative bleeding time using SPSS statistical software version 22. The results revealed that the mean bleeding time for the patients with a low-dose aspirin regime during minor oral surgery was 5.49 ± 1.07 , while for the patients with a stopped aspirin dose was 4.57 ± 1.07 . The comparative analysis using a t-test doesn't reveal significant statistical differences of $p < 0.05$ between both groups.

CONCLUSION

We concluded that minor oral surgical procedures could safely be done without altering or stopping the low-dose, long-term aspirin regime.

KEYWORDS: Aspirin, Oral Surgery, Bleeding Time, Low Dose

studies now suggest continuing the low-dose aspirin during dental extraction in patients with cardiovascular diseases because continuing the low-dose aspirin during the minor dental procedure doesn't result in excessive bleeding during or after extraction. Verma et al. conducted a study to determine whether to continue or quit aspirin during tooth extraction. He performed the analysis on two groups of patients. One group continued the low-dose aspirin therapy during the extraction procedure, while the other group stopped it a week before the surgery. A single tooth was extracted, and bleeding was stopped by the pressure of wet gauze in all cases. Excessive intraoperative or postoperative bleeding was not seen in any patient. Similar studies suggest continuing the low-dose aspirin during extraction.³ The objective and role of aspirin or any other antithrombotic agent is to prevent the lethal cardiovascular effects, that may result from stopping the aspirin. Aspirin is very effective in the treatment of cardiovascular disorders such as myocardial infarction, arterial and mitral thrombosis and stenosis. Aspirin prevents thrombus formation in the heart, aorta, peripheral arteries and veins. The first step in the thrombus formation is the aggregation of platelets and aspirin inhibits this aggregation by irreversibly blocking the cyclooxygenase and permanently depriving the platelets of thromboxane. Therefore, aspirin is very essential for those patients who have some cardiovascular disease. However, such patients also have some dental problems and need extraction at some point in their life. Theoretically, there will be more bleeding during surgery and postoperative bleeding time will also increase, if the patient is using aspirin during dental extraction. On the other hand, stopping the aspirin is also not safe in such patients, because discontinuation can result in some lethal cardiovascular effects. In this context, numerous studies and researches have been completed to know the actual correlation between the use of aspirin and bleeding during dental extraction. And many studies suggest no significant impact of aspirin on intraoperative or postoperative bleeding.⁴ The use of aspirin is essential because it has an extended list of indications because of its multiple therapeutic properties. Aspirin has an anti-inflammatory property used in many inflammatory diseases, such as rheumatoid arthritis, spondylitis, and osteoarthritis. Due to its antipyretic and analgesic properties, aspirin is indicated in fever, headache, mild to moderate pain, acute inflammation and musculoskeletal disorders. The other most important therapeutic property of aspirin is the antiplatelet effect. Due to the antiplatelet effect, aspirin is used in treating and prophylaxis of many cardiovascular diseases. Important cardiovascular indications of aspirin include treatment and

prophylaxis of angina pectoris, treatment and prophylaxis of myocardial infarction, treatment and prevention of ischemic strokes, and prophylaxis of revascularization procedures. It is also indicated in the prophylaxis of thromboembolism. When a patient's low dose long term aspirin regimens are halted before a minor oral surgical procedure, the patient is exposed to unpleasant thrombotic events. The rationale of this study is to determine whether stopping the low dose of aspirin before a minor surgical procedure is vital or required or whether a procedure can safely be carried out without interfering with the regimen.

METHODOLOGY

A descriptive cross-sectional hospital-based study was carried out from mid-April to mid-June 2021 on the patients visiting the dental OPD of Altamash Institute of Dental Medicine, Karachi, Pakistan. The patients were initially diagnosed by the department of Oral diagnosis and then referred to Oral Surgery for further treatment. The study protocols were supervised by the Ethics Committee of the Institute (AIDM/ERC/11/2021/01). Participants were fully informed regarding the procedure, and informed consent was taken before data collection. The patients, including both genders, age (30 to 75 years), on long-term low-dose aspirin regimens (75 to 100 mg), requiring minor oral surgery procedures that could be performed on an outpatient basis, who were not on any concurrent therapy such as birth control pills, hormone replacement therapy, other anticoagulation; or any drug such as NSAIDs that could interact with the aspirin, presented to hospital between April-June 2021, who were capable of making an independent decision to participate and understood the purpose of conducting this study were a part of our research. Those patients who were not taking the low-dose aspirin, pregnant or lactating females, oral and maxillofacial tumors or cysts, and drug users who were actively a part of another intervention study or clinical trial were excluded from our research. A thorough preoperative evaluation of the patient's blood work included their bleeding time and platelet count reports. If the reports were satisfactory and within the normal range, the surgical procedure was performed, while if the values were not as per the normal range or abnormal, the surgical intervention would be deferred, and after consent from the attending physician, the patient would be advised to stop their low dose of aspirin for at least seven days. The patient would then be prescribed medications for his pain if any and recalled. Once back, the investigations were repeated, and a similar protocol was undertaken. All surgical procedures were performed under local anesthesia by the same surgeon

((Xylocaine 2% with 1:2,00,000 Epinephrine) and were given a chlorhexidine mouth before the procedure. Patients have been prescribed postoperative antibiotics with analgesics when needed and thorough written instructions for proper wound care. Local hemostatic measures such as gauze, Surgicel is a hemostatic agent (blood-clot-inducing material) made of an oxidized cellulose polymer, and a surgical diathermy machine were arranged and kept in case of an unseen unpleasant event. After the extraction, the 3/0 black braided silk sutures were used on the surgical sites. Once the procedure was completed, a 30-minute check was done to ensure initial hemostasis was achieved. The surgeon prescribed paracetamol-based analgesics to avoid any interaction with aspirin. Follow-up was completed after 24, 48, and 72 hours, and at one week (when the sutures were removed) and two weeks. Fifty-one subjects were selected for the research, including 32 males and 19 females. The data was taken through a questionnaire. Besides the demographic data, the questionnaire comprised ten questions, including both open and closed-ended questions. The English version of the questionnaire was translated into the native language, and the participants were interviewed to complete the questionnaire. The study's variables were duration of aspirin, indications for using aspirin, type of procedure performed, postoperative medications, platelets count, clotting time, normal bleeding time, and intraoperative bleeding time. The normal bleeding time of the participants was compared with the intraoperative bleeding time, and the results were analyzed. The data were first transferred to Microsoft Excel, and the results were analyzed using SPSS statistical software version 22.

RESULT

The present study was carried out on 51 patients. Among them, 32 were males, and 19 were female. Patients were further divided into two groups based on whether they were taking aspirin (group 2) or not (group 1) for minor oral surgery. The comparison was made between group 1 and group 2 on the bleeding time. The mean bleeding time of patients taking aspirin for minor oral surgery without stopping the daily dose of aspirin therapy (group 2) was 5.49 ± 1.07 , whereas the mean bleeding time of patients not taking aspirin for minor oral surgery of aspirin therapy (group 1) was 4.57 ± 1.07 . (**Table 1**) indicates the normal preoperative and intraoperative bleeding time with mean and standard deviation values.

Table 1: Bleeding Time (Preoperatively and Intraoperatively)

	Normal Bleeding Time(Pre-Operative (minutes))	Bleeding Time(Intra Operative (minutes))
Frequency (N)	54	54
Mean	4.5741	5.4906
Std. Deviation	1.07461	1.06740
Minimum	3.00	3.00
Maximum	7.00	8.00

When the means of the two study groups were compared using one sample t-test, results showed no significant statistical difference between the two groups bleeding time ($p < 0.05$) (Table 2). The mean intraoperative bleeding time of patients taking aspirin (Group 1) was significantly increased compared to the mean bleeding time of the normal group (Group 2).

Table 2: One-Sample Test

	Test Value					
	t	df	Sig. (2 tailed)	± MD	95% CI of the Difference	
					Lower	Upper
Intra Operative Bleeding Time	37.448	52	0.000	5.49057	5.1964	5.7848
Normal Bleeding Time Preoperative	31.279	53	0.000	5.49057	4.2808	4.8674

The t-value is -4.15245. The p-value is .000069. The result is significant at $p < .05$.

DISCUSSION

Following the "Antiplatelet Trialist" conducted over 140,000 patients across approximately 300 literary studies, the meta-analysis affirmed the prophylactic effect of aspirin on patients with a history of myocardial infarction, stroke, bypass surgery and bypass surgery angina, indicating its affectivity over men as well as women.⁵ It is perceived so far that the vascular events have successfully minimized for up to 20 per cent to 25 per cent within the first "index event", whereas the mortality rate has been reduced to 12 per cent.⁶ According to Hongo, Richard et al, the regime of low-dose aspirin have efficacy against cardiovascular conditions yet limits its effects over gastrointestinal concerns.⁷ The fact stated earlier has gained great acknowledgement within the past decade. The literary evidence has revealed that aspirin inhibits the action of cyclooxygenase, resulting in undesirable interference between the prothrombic TXA2 syntheses.⁸ The prothrombic TXA2 is an essential compound for

activating the platelet cycle.⁹ The interference is supposed to compromise platelet formation, resulting in platelet dysfunction and preventing platelet aggregation in blood.¹⁰ According to platelets adhesion, activation and aggregation are essential for thrombus formation, explaining aspirin's antithrombotic properties.¹¹ Platelets have a crucial role in hemostasis. As evident, platelet adhesion, activation and aggregation are necessary for prior arrest bleeding.¹² In the case of platelet dysfunction, the risk of prolonged bleeding doubles.¹³ Due to this constant risk, it is a conventional practice for clinical practitioners to ask patients on a long-term aspirin regime to discontinue the consumption of the drug for a few days before the surgical procedure.¹⁴ On the other hand, discontinuing aspirin increases the risk of developing thromboembolism, leading to myocardial infarction or cerebrovascular accident in severe cases.¹⁵ This surface the dilemma associated with administering aspirin and discontinuing the drug even before minor oral surgery. An extensive study of the literary evidence has revealed that most authorities have supported stopping the aspirin regime before minor oral surgery. However, via their academic work, Binhas, Michèle, et al declared that there is no need to stop the administration of low-dose aspirin before any surgery. In addition, Cheng et al suggested not stopping the use of the aspirin regime prior to "elective dermatologic surgery" if the patient's bleeding time is within the normal range.^{16,17} Kent et al; Eapen et al argued that there is no need to stop the low-dose aspirin therapy before any minor oral surgical procedure.¹⁸⁻¹⁹ The data analysis of our study revealed that the mean bleeding time for the patients taking aspirin was found to be 5.49 ± 1.07 , while the mean bleeding time for the patients who stopped their aspirin therapy was 4.57 ± 1.07 , with a statistical difference of $p < 0.05$. The mean intraoperative bleeding time for the aspirin patient was not significantly elevated; only the difference of $p < 0.05$ on the t-test was observed. In support of this research, the study conducted by Verma over 51 patients on low-dose long-term aspirin therapy with scheduled minor oral surgery. The preoperative bleeding times and platelet counts were recorded, and all the figures were found to be within the normal range. The minor oral surgery was carried out using local anaesthesia. Regarding the bleeding, a simple pressure pack with sutures were enough to tackle the bleeding, where only one patient required intraoperative administration of local hemostatic agents. However, sufficient follow-ups with the practitioner were implemented to deal with the complications associated with postoperative bleeding if they occur.

LIMITATIONS

This study is limited to one institutional data. It may be possible that the demographic factors of the patients coming to the dental outpatient department where this study was conducted are the same, which can create a bias as the results will lack the diversity of the patients demographically. Moreover, the professional expertise possessed by any dental professional from different institutes may differ. Expanding the same methodology in multi-institutional data collection may eliminate this bias.

CONCLUSION

Through this study, the researchers were able to structure a definite conclusion of their own, stating that minor oral surgical procedures can be safely performed without altering or stopping the low-dose long-term aspirin regime. It is accepted that the patient count included in this research is limited. However, the researcher believes this study can be used as essential evidence and proof for larger and multicentre studies. It is perceived that those multicentre studies would be more conclusive.

CONFLICT OF INTEREST: None

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CONTRIBUTORS

1. **Batool Sajjad** - Concept & Design; Supervision; Final Approval
2. **Sehrish Choudhry** – Data Acquisition; Data Analysis Interpretation; Drafting Manuscript
3. **Subeen Masood** – Data Acquisition; Drafting Manuscript; Critical Revision; Final Approval
4. **Zafar Abbas** - Drafting Manuscript
5. **Hasham Aleem** – Data Analysis/Interpretation
6. **Syed Akbar Abbas Zaidi** – Data Analysis/Interpretation; Drafting Manuscript



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