

Effect of antiplatelet therapy on minor dental procedures

ABSTRACT

Introduction: Minor oral surgical procedures are very common. Acetylsalicylic acid generically known as aspirin is used clinically as an analgesic, antipyretic, anti-inflammatory, and as a medication to prevent platelet aggregation.

Objective: The aim of this study was to determine if aspirin or clopidogrel was associated with bleeding after minor oral surgical procedures.

Materials and Methods: One hundred patients who were planned for extraction of the third molar were divided into two groups. In Group A, patients on antiplatelets were included and in Group B, patients who discontinued the drug before 5 days of procedure were included. The bleeding time of all patients was checked before extraction. The surgical procedure involved simple extraction of a single third molar tooth under local anesthesia. The extraction socket was sutured with 3-0 silk. A pressure pack of gauze was given for 1 h. Bleeding after 1 h and 24 h was compared between two groups. A Chi-square test was used to compare the variables.

Results: None of the patients showed active bleeding in the postoperative period. The results for postsurgical bleeding were statistically insignificant with $P = 0.05$.

Conclusion: Minor surgical procedures such as single-tooth extraction can be carried out without discontinuation of the antiplatelet therapy.

Keywords: Antiplatelet, aspirin, oral surgical

INTRODUCTION

Platelet function is important for platelet aggregation, and antiplatelet drugs are used to interfere with this function for prophylactic or therapeutic uses. Thromboembolic disorders such as coronary artery diseases and cerebrovascular diseases are very common these days due to change in lifestyle and increased life span. Commonly used oral antiplatelet drugs include aspirin and thienopyridines (e.g., clopidogrel). The enzyme cyclooxygenase-1 (COX-1) that produces thromboxane A2 is essential for platelet aggregation, aspirin irreversibly inhibits COX-1, thus preventing platelet aggregation and consequently increasing the bleeding time. At low doses such as 75 mg/day, the complete inhibition of the COX-1 enzyme and hence the maximal antiplatelet effect may take several days. At a dose of 160–325 mg/day, the maximal antiplatelet effect of aspirin occurs within 30 min.^[1] Aspirin in low doses (75–150 mg/day) is used for the long-term prevention of heart attacks and strokes, whereas moderate doses (160–325 mg/day) of aspirin are


given in situations where immediate anticlotting effects are needed (such as in the treatment of acute heart attacks and unstable angina). The other drug clopidogrel, commonly used nowadays, is a prodrug that alters adenosine diphosphate receptors on platelets and inhibits platelet aggregation.^[2] The onset of action of clopidogrel is also dose related. Maximal antiplatelet effect occurs several days after the initiation of clopidogrel (75 mg/day). It is still a common practice among dentists and medical practitioners to discontinue aspirin therapy before any surgical procedure due to fear of excessive postoperative bleeding in patients on antiplatelet

ALTAF HUSSAIN MALIK, SHABNUM MAJEED¹

Department of Oral and Maxillofacial Surgery, Govt. Dental College, ¹Department of Health and Medical Education, Srinagar, Jammu and Kashmir, India

Address for correspondence: Dr. Altaf Hussain Malik, Govt. Dental College, Srinagar - 190 010, Jammu and Kashmir, India.
E-mail: drmalikaltaf@gmail.com

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therapy. However, the stoppage of this medication may increase the risk of serious thromboembolism, myocardial infarction, or cerebrovascular accident and can be life threatening.^[2] The stoppage or discontinuation of daily antiplatelet drugs (aspirin/clopidogrel) can worsen the existing disease condition.^[1] Collet *et al.* found a higher rate of death or myocardial infarction with discontinued antiplatelet therapy compared to others.^[3] The bleeding episodes are very common after extraction or any other oral surgical procedures. There are not enough guidelines about surgical procedures in patients on antiplatelet drugs, and antiplatelet drugs are stopped randomly by clinicians; hence, this study was designed to formulate a basis for the surgical procedures in patients on antiplatelet drugs.

MATERIALS AND METHODS

The study was conducted in the Department of Dentistry and Maxillofacial Surgery, Government Medical College, Baramulla, Jammu and Kashmir, from March to May 2019. Patients visiting the department for dental extractions and who were on low-dose aspirin or clopidogrel were selected for the study. Patients with a history of bleeding or clotting disorders, liver diseases, uncontrolled bleeds, hypertensives, and patients with impacted and mobile teeth were excluded from the study. Bleeding time of all the patients was recorded before the procedure. An informed consent was obtained from the patients, and The study was approved by the departmental ethical committee (DEC No-72/D/GMBla/2019 dated 22-03-2019). Patients were allocated to two groups randomly. In Group A, fifty patients were studied; no prior stoppage of aspirin or clopidogrel was advised, and in Group B, the other fifty patients allocated were in whom the drugs were stopped 5 days before the procedure. The extraction of third molar teeth was done by a single surgeon. The investigator was blind to the groups being studied. Suturing with 30 silk was done, followed by pressure pack placement in the extraction socket for 1 h, and routine instructions were passed to the patients. Patients were discharged at 1 h after extraction. Bleeding was evaluated 1 h and 24 h postoperatively. All the patients were requested to contact immediately if any bleeding occurred. Postoperative patients were assessed for the presence or absence of bleeding, oozing, and active bleeding. Oozing was considered when blood completely turns the pack into red but does not fill the mouth with blood. Active bleeding was considered when the socket was bleeding sufficiently to fill the mouth with blood frequently. Local hemostatic measures such as pressure packs were used to control any incidence of uncontrolled bleeding. The data were entered into a master sheet, and SPSS software (SPSS 15; SPSS Inc., Chicago, IL, USA)

was used to do the computational analysis. A Chi-square test was used to compare the results, and $P < 0.05$ was considered statistically significant.

RESULTS

The studied groups were compared with respect to age and duration of the therapy [Table 1]. The mean bleeding time was calculated before the surgery. We did not experience any significant active bleeding in any group at 1-h time period except for minor ooze in two patients in Group A and in one patient in Group B [Table 2]. At 24-h time period, no significant active bleeding or oozing was reported in either of the groups except for minor ooze in three of the Group A patients and two of the Group B patients [Table 3].

DISCUSSION

Aspirin and clopidogrel are used widely at present to prevent complications such as infarction in high-risk groups of cardiovascular or cerebrovascular diseases. Dentists as surgeons are always in a fix whether to continue or discontinue the antiplatelet medication. The studies have shown that the patients with acute coronary syndrome who discontinued daily aspirin have worse short-term outcomes than individuals not previously on aspirin therapy.^[4-7] Collet *et al.* in a prospective evaluation of 1358 patients admitted for suspected acute coronary syndrome found that those patients who recently discontinued antiplatelet drugs had higher 30-day rates of death or myocardial infarction compared to others.^[1] In dentistry, bleeding complications from extractions and gingival surgery have been documented

Table 1: Comparison of various variables in the two groups and preoperative bleeding time

Variable	Groups	Number of patients	Mean
Age (years)	A	50	52.12
	B	50	51.14
Preoperative bleeding time (s)	A	50	76.19
	B	50	76.13
Duration of drug therapy (months)	A	50	54.63
	B	50	52.34

Table 2: Postoperative bleeding after 1 h

Group	Number of patients	No bleeding	Ooze	Active bleeding
A	50	48	2	0
B	50	49	1	0 ($P=0.05$)

Table 3: Postoperative bleeding at 24 h

Group	Number of patients	No bleeding	Ooze	Active bleeding
A	50	47	3	0
B	50	48	2	0 ($P=0.05$)

in earlier case reports of patients on aspirin.^[8-10] However, it is unclear if these bleeding episodes were associated directly with aspirin use or other factors. Madan *et al.* investigated bleeding in 51 patients taking aspirin who underwent extraction of teeth. Only one patient had bleeding which was controlled by local measures. The authors recommended continuing aspirin during dental extraction.^[11] Garnier *et al.* did the extraction of 218 teeth, and only three extraction sites had prolonged bleeding.^[12] Brennan *et al.* studied 36 patients divided into two groups: Group 1 patients received 325 mg acetylsalicylic acid (ASA) daily and Group 2 served as control. They investigated the bleeding time. No significant differences were found between the two groups in the bleeding time. They recommended not to stop ASA before the surgical procedure.^[13]

In our study on 100 patients, we did not encounter any bleeding episodes in the patients who were on aspirin and continued with it, and results were comparable to the patients in whom extraction was done after discontinuing the aspirin for 5 days. None of the patients exhibited active bleeding in either of the groups in our study; although there was minor ooze at 1-h or 24-h time period which was managed with local measures such as pressure packs but it was insignificant. Girotra *et al.* in their analysis of 546 patients on antiplatelet drugs found a prolonged bleeding incidence in those patients on dual drugs (aspirin and clopidogrel) and recommended higher hemostatic measures.^[14] Aspirin withdrawal had clear prognostically adverse consequences for patients with ischemic heart disease is pointed out by a large meta-analysis involving 50,279 patients taking aspirin for secondary prevention in which it was shown that their risk of developing major cardiovascular events after aspirin withdrawal was three times higher than in those who continued aspirin therapy. The average time from aspirin withdrawal to a thrombotic cardiovascular event was 10.7 days.^[15]

Our study recommends that the antiplatelet drugs should not be withdrawn in single-tooth extractions, in view of the large risk associated with withdrawal, and local hemostatic measures should be exploited without interfering with the antiplatelet therapy.

CONCLUSION

Antiplatelet drugs are widely used to prevent cardiovascular or cerebrovascular complications and should not be withdrawn for a minor surgical procedure such as extraction;

the bleeding in such cases can be managed by local hemostatic measures.

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Conflicts of interest

There are no conflicts of interest.

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