

Post-surgical bleeding in patients on anti-platelet therapy in minor oral surgical patients - A comparative randomized study

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Abstract: *Introduction:* Minor oral surgical procedures are very common. Acetylsalicylic acid (ASA) 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 procedure. *Patients and methods:* One hundred patients who were planned for extraction of 3rd molar were divided into two groups. In group-A 50 patients on anti-platelets were included and in Group-B 50 patients who discontinued the drug prior to 5 days were included. The bleeding time of all patients was checked prior to extraction. The surgical procedure involved simple extraction of a single 3rd molar tooth under local anesthesia. The extraction socket was sutured with 3-0 silk. Pressure pack with gauze was given for 1h, bleeding after 1 h, 24 h, were compared between two groups. Chi-square test was used to compare the variables. *Results:* None of patients showed active bleeding in post-operative period. *Conclusion:* Minor surgical procedures like single tooth extraction can be carried out without discontinuation of the anti-platelet therapy.

Keywords: Anti-platelet, Oral Surgical, Aspirin.

Introduction

Platelet function is important for platelet aggregation and anti-platelet 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 now due to change in lifestyle and increased life span. Commonly used oral anti-platelet drugs include aspirin and thienopyridines (e.g., clopidogrel). The enzyme cyclo-oxygenase-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. In low doses (75 mg/day), the complete inhibition of the COX-1 enzyme and hence maximal anti-platelet effect may take several days. At a dose of 160-325 mg/day, the maximal anti-platelet effect of aspirin occurs within 30 minutes [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 an immediate anti-clotting effects are needed (such as in the treatment of acute heart attacks and unstable angina). The other drug commonly used now, Clopidogrel is a pro drug that alters adenosine diphosphate receptors on platelets and inhibits platelet aggregation [2].

The onset of action of clopidogrel is also dose-related. Maximal anti-platelet effect occurs several days after initiation of clopidogrel (75 mg/day). It is common practice still among dentists and medical practitioners to discontinue aspirin therapy before any surgical procedure due to fear of excessive postoperative bleeding in patients on anti-platelet therapy. However, 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 anti-platelet drugs (aspirin/ clopidogrel) can worsen the existing disease condition [1]. Collet et al. found higher rate of death or myocardial infarction with discontinued anti-platelet 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 anti-platelet drugs and anti-platelet drugs are stopped randomly by clinicians, hence this study was designed to formulate a basis for the surgical procedures in patients on anti-platelet drugs.

Material and Methods

The study was conducted in the department of dentistry and maxillofacial surgery Government Medical Baramulla JK 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 history of bleeding or clotting disorders, liver diseases, uncontrolled bleeds, hypertensive, patients with impacted and mobile teeth were excluded from the study. Bleeding time of all the patients was recorded prior to the procedure. An informed consent was obtained from the patients and the study was approved by the head of the department. Patients were allocated to two groups randomly.

In group A 50 patients were studied, no prior stoppage of aspirin or clopidogrel was advised and in Group B the other 50 patients allocated were in whom the drugs were stopped 5 days before the procedure. The extraction of 3rd molar teeth was done by single surgeon and investigator studying the groups was blind to the groups being studied. Suturing with 3-0 silk was done followed by pressure pack placement in the extraction area for 1 hour and routine instructions were passed to the patients. Patients were discharged 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 haemostatic measures like

pressure packs were used to control any incidence of uncontrolled bleeding. The data was entered into master sheet and SPSS software was used to do the computational analysis. A Chi square test was used to compare the results and p value <0.05 was considered significant.

Results

The groups studied were compared with respect to age, and duration of the therapy (Table1). The mean bleeding time was calculated prior to surgery. We didn't experience any significant active bleeding in any group at 1 hr time period after the procedure except for, minor ooze in 2 patients in group A and in 1 patient in group B (table2).

Table-1: Comparison of various variables in the two groups and pre-op bleeding time

Variable	Groups	Number of patients	Mean
Age (Years)	A	50	52.12
	B	50	51.14
Pre- op bleeding time (seconds)	A	50	76.19
	B	50	76.13
Duration of drug therapy in months	A	50	54.63
	B	50	52.34

Table-2: Post-op bleeding after 1 hr

Group	No of subjects	No bleeding	Ooze	Active bleeding
A	50	48	2	0
B	50	49	1	0 (P- value. 0.05)

At 24 hr time period no significant active bleeding or oozing was reported in either of the group except for minor ooze in 03 of the group A patients and 2 of the group B patients (table 3).

Table-3: Post-op bleeding at 24hr

Group	No of subjects	No bleeding	Ooze	Active bleeding
A	50	47	3	0
B	50	48	2	0 (P-value 0.05)

Discussion

Aspirin and clopidogrel are used widely presently to prevent complications like infarction in high risk groups of cardiovascular or cerebrovascular diseases. Dentists as surgeons are always in a fix either to continue or discontinue the anti-platelet 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 anti-platelet drugs had higher rates of death or myocardial infarction compared to others for 30-days [1].

In dentistry bleeding complications from extractions and gingival surgery have been documented 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. (2005) 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. (2007) did extraction of 218 teeth and only three extraction sites had prolonged bleeding [12]. Brennan et al. (2008) studied 36 patients divided into two groups: Group 1 patients received 325 mg ASA daily and Group 2 served as control. They investigated the bleeding time and found no significant differences 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 didn't encounter any bleeding episode 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. In our study none of the patients exhibited active bleeding in either of the groups though there was minor ooze at 1 hr or 24 hr time period which was managed with local measures like pressure pack but it was insignificant. Girotra et al., in their analysis of 546 patients on anti-platelet drugs found a prolonged bleeding incidence in those patients on dual drugs (aspirin and clopidogrel) and recommended higher haemostatic measures [14].

Aspirin withdrawal had clear prognostically adverse consequences for patients with ischemic heart disease as 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 3 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 anti-platelet drugs should not be withdrawn in single tooth extractions, in view of the large risk associated with withdrawal and local haemostatic measures should be exploited without interfering with the anti-platelet therapy.

Conclusion

Anti-platelet drugs are widely used to prevent cardiovascular or cerebrovascular complications and shouldn't be withdrawn for minor surgical procedure like extraction, the bleeding in such cases can be managed by local haemostatic measures.

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