

THE EFFECT OF LOW DOSE ASPIRIN ON BLEEDING IN PATIENTS UNDERGOING MINOR ORAL SURGICAL PROCEDURES

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ABSTRACT

Objective: To evaluate the safety of oral surgical procedures without stopping low dose aspirin.

Study Design: Randomized controlled trial.

Place and Duration of Study: Oral and Maxillofacial Surgery department, Armed Forces Institute of Dentistry, Rawalpindi, from Mar 2008 to Mar 2009.

Material and Methods: Seventy patients taking aspirin 75 to 150 mg daily and requiring minor oral surgery were included. Patients were randomly divided into two groups, group A (control group) who stopped taking aspirin and group B (intervention group) in which aspirin was not stopped. Their bleeding time (BT) and platelet count were assessed before surgery. Suturing and pressure pack were used to control bleeding. Data were entered in SPSS version 10.

Results: Out of 70 patients, 48 (68.57%) were male and 22 (31.43%) female. The mean age was 58.83 ± 10.94 years. The mean bleeding time was 2.23 ± 0.013 minutes for group A, and 2.71 ± 0.12 minutes for group B. The difference was statistically significant ($p=0.01$). Severe bleeding was noted in 2 patients from group A and 3 patients from group B, but local haemostatic measures were sufficient to control bleeding.

Conclusion: The patients on low dose aspirin can safely undergo routine minor oral surgical procedures, without alteration in their regular therapeutic aspirin regimen.

Keywords: Aspirin, Antiplatelet, Bleeding time, Complications.

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INTRODUCTION

Low dose aspirin (75 to 150 mg) on regular basis is indicated in primary cardiovascular prevention and recent data also linking it with cancer protection¹. The prophylactic use of aspirin reduce vascular events by 20-25% in first few years and overall mortality rate reduced by 12%. Other studies reported that antiplatelet therapy has reduced overall mortality of vascular disease by 15% and non fatal complications by 30%². The use of aspirin and other antiplatelet medications has increased many fold due to myriad medical conditions, due to which there is a risk of prolonged bleeding following minor oral surgical procedures.

The fear of uncontrolled bleeding

prompts medical and dental practitioners to stop aspirin intake for 7 to 10 days before any surgical procedure³⁻⁵. Stoppage of taking low dose aspirin results in rebound phenomenon, leading to increased risk of fatal thromboembolic events⁶. It also results in increased risk of emboli formation, thromboembolism, myocardial infarction or cerebrovascular accident⁷.

On the other hand, continuation of aspirin can increase bleeding time and risk of intra operative bleeding⁸, which require special measures to control it post operatively. Definitive guidelines barely exist regarding this issue which make it uncertain how to approach this dilemma.

A rise in number of patients on the low dose aspirin for various medical conditions requiring surgical intervention demands clear understanding of effects of aspirin on bleeding. In this study, we evaluated the effect of low dose aspirin on bleeding in patients undergoing minor oral surgical procedures.

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Received: 04 Jun 2016; revised received: 08 Jun 2017; accepted: 11 Jul 2017

PATIENTS AND METHODS

It was a randomized controlled trial in which 70 patients of both gender and all age groups taking low dose aspirin (75-150 mg) on regular basis, who reported to Oral and Maxillofacial Surgery Department, Armed Forces Institute of Dentistry Rawalpindi from March 2008 to March 2009 were included by purposive sampling. WHO calculator was used to calculate the sample size. Bleeding time and blood complete picture was advised. Those who had normal bleeding time and platelet count were selected. Patients

- a. Simple extractions of a single tooth without removal of bone.
- b. Compound procedures including extractions of up to three teeth with minor alveoloplasty procedure as well.
- c. Surgical procedures involving raising a mucoperiosteal flap and removal of large amount of bone with or without tooth removal.

Volume of blood loss during surgical procedure was measured by subtracting the

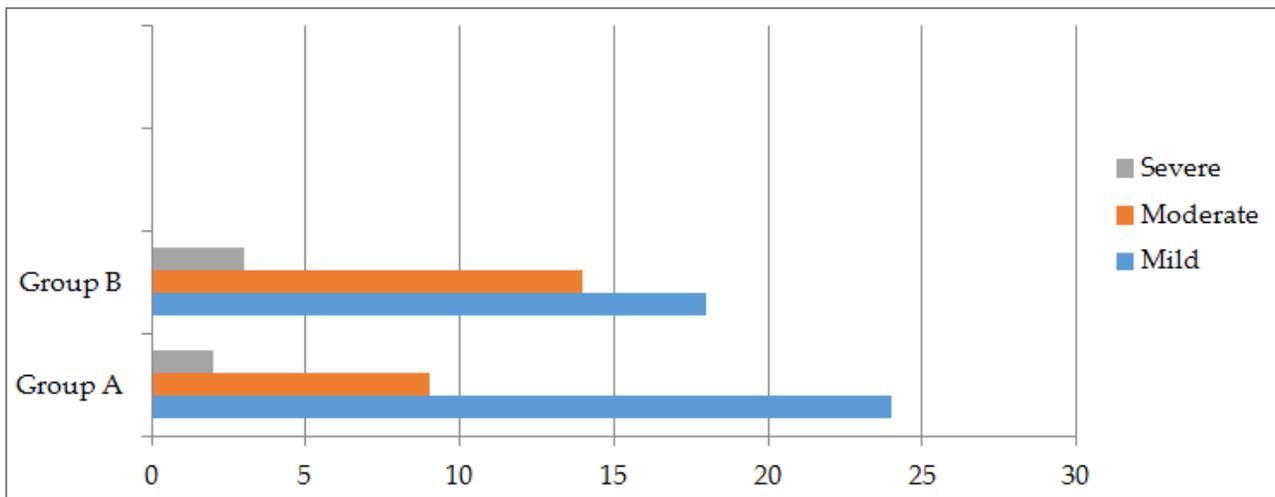


Figure: Amount of blood loss in both groups.

with haemoglobin less than 10mg/dl and patients on other anticoagulants were excluded. The study was approved by ethical committee at AFID and informed written consent was obtained.

Patients were divided randomly by random number table, 35 in each group e.g. Group A (control group) and group B (study group). Group A was advised to stop taking aspirin 10 days before minor surgical procedure and group B was asked not to stop aspirin. Necessary pre operative investigations e.g. periapical radiograph, Orthopantomogram (OPG) and occlusal view were also advised according to the surgical procedure. The required minor surgical procedure was performed under local anaesthesia by same operator. The surgical procedures were divided into three categories:

volume of irrigation solution from total volume of fluid (blood and irrigation solution) accumulated in suction bottle. Less than 20ml of blood loss was considered mild, between 20-50 ml moderate and more than 50ml was considered severe blood loss.

Pressure pack was applied for 30 min after every surgical procedure and 3/0 silk suture was used when required. After 30 min patients were examined for any post operative bleeding. Post operative instructions were given.

Data were analyzed by SPSS version 10, Mean and standard deviation (SD) was calculated for age. Frequencies and percentages were calculated for gender and blood loss. Independent sample t-test was used to compare blood loss in both groups. A *p*-value of less than 0.05 was taken statistically significant.

RESULTS

Out of 70 patients, 48 (68.57%) were male and 22 (31.43%) female. The mean age was 58.83 ± 10.94 years. Bleeding time ranged from 1.37 to 5.16 minutes with mean bleeding time of 2.47 ± 0.78 minutes. Bleeding time for group A was 1.37 - 5.16 minutes with mean of 2.23 ± 0.13 minutes. In group B, bleeding time ranged from 1.49 - 4.20 minutes with mean of 2.71 ± 0.12 minutes. There was a statistically significant difference between the bleeding times of both groups (*p*<0.001).

The platelet count ranged from 103 x 10⁹ to 438 x 10⁹. Blood loss was measured as mild,

when extractions were complicated, whereas preoperative values of bleeding time for both groups were within normal limits for all patients.

Severe bleeding was noted in 2 patients from group A and 3 patients in group B.

In 5 (7.14%) patients, from both groups, intraoperative bleeding was controlled with simple interrupted sutures, and local hemostasis was achieved with direct packing with gauze wet with normal saline. In 2 (5.71%) patients, from group A and 3 (8.57%) from group B, 10% tranexamic acid was added to the local pressure pack, which stopped bleeding. No episodes of

Table-I: The types of surgical procedures and the occurrence of severe intra-operative bleeding.

Surgical Procedures	Intra-operative blood Loss (IOB)			
	Group A		Group B	
	n (%)	Severe IOB n (%)	n (%)	Severe IOB n (%)
Simple Extraction	18 (51.42)	1 (2.85)	17 (48.57)	1 (2.85)
Compound Procedure	8 (22.85)	0 (0.00)	9 (25.71)	0 (0.00)
Complex Surgical procedure	9 (25.71)	1 (2.85)	9 (25.71)	2 (5.71)
Total	35 (100)	2 (5.71)	35 (100)	3 (8.57)

Table-II: Additional local haemostatic measures taken to control bleeding.

Local haemostatic measures to control bleeding	Group A Severe bleeding n (%)	Group B Severe bleeding n (%)
Suturing done with 3/0 silk	02 (5.71)	03 (8.57)
Transamine soaked guase pack after procedure	02 (5.71)	03 (8.57)

moderate and severe. In group A, mild bleeding was seen in 24 (68.57%) patients, moderate in 9 (25.71%) patients and severe in only 2 (5.71%) patients. In group B, mild bleeding was seen in 18 (51.42%) patients, moderate in 14 (40%) patients and severe bleeding was noted in only 3 (8.57%) patients (figure). Blood loss was not statistically significant (*p*=0.342) in both groups.

The types of surgical procedures and the occurrence of severe intra-operative bleeding is shown in table-I. Both groups did not differ in complexity of operative procedures, and severity of intraoperative bleeding did not differ significantly between two groups. In both groups, more intraoperative bleeding was encountered

uncontrolled postoperative bleeding or other complications were reported during following week after surgery. The local haemostatic measures are shown in table-II.

DISCUSSION

Aspirin is common, chronically administered and only anti-inflammatory medication used for prevention of cardiovascular thromboembolic diseases^{9,10}. Aspirin induces functional defect in platelets resulting in prolongation of bleeding time¹¹. This fear of uncontrolled bleeding prompts many of dental practitioners to stop aspirin 7-10 days before any surgical procedures including simple tooth extractions and dentoalveolar surgery. At the same time stopping aspirin

before minor surgical procedure to prevent excessive bleeding has enormous relevance.

In this study, 48 (68.57%) were male and 22 (31.42%) female. This was contrary to a study in which out of 189, 54 (28.57%) were male and 139 (73.54%) were female.

Blinder and colleagues^{12,13} reported the outcomes of two studies that documented post-operative bleeding in oral surgery patients, receiving oral anticoagulation therapy. They used various local haemostatic measures without pre-operative interruption of their anticoagulation therapy.

No radical steps were taken to stop post operative bleeding in this study and in 65 (92.85%) patients, direct pressure packs or sutures were only haemostatic tools used. In other 5 (7.15%) patients, 10% tranexamic acid was added to the local packing, which stopped the oozing from the extraction site.

Medeiros et al¹⁴ performed simple single tooth extraction in patients on aspirin therapy. They divided the patients in two groups and studied per operative and post operative bleeding complications. They concluded that no need to suspend aspirin in patients with single molar tooth extractions. In this study, the surgical procedures were not limited to single tooth extraction, rather minor oral surgical procedures were also included.

Ardekian et al² in their study evaluated the effect of aspirin on bleeding in 39 patients who were scheduled to undergo minor oral surgery and were receiving 100mg of aspirin daily. In his study, 15% patients received post operative tranexamic acid while in this study, only 7% patients received tranexamic acid. In his study, in 85% patients bleeding were controlled with sutures and pressure pack while in this study, only 32% patients were undergone suturing and pressure pack. No patient experienced uncontrolled bleeding in immediately post operative period.

Campbell¹⁵ evaluated patients on anti-coagulant medications undergoing dentoalveolar surgery and amount of blood loss by stopping medication 72-96 hours prior to procedure. There was no difference in blood loss detected among any of the experimental or control groups. No bleeding complications occurred in any patient. In this study, the blood loss in group A was less than patients in group B, but it was statistically not significant ($p=0.187$).

Verma et al¹⁶ performed a comparative study to evaluate the incidence of bleeding complications in patient on aspirin therapy. Study comprise three groups taking 75-325 mg aspirin and single tooth extraction by intra-alveolar method was carried out and concluded that it is safe with continued aspirin therapy. In this study, 75 mg aspirin was used by patients and minor surgical procedures were performed without any intra-operative bleeding complications.

Park et al¹⁷ performed a prospective clinical study to evaluate safety of dental extractions in patients on continued antiplatelet therapy with multiple drugs. The author concluded that dental extractions can safely be performed in patients on multiple antiplatelet agents. Another study concluded that simple extraction is safer without discontinuing aspirin¹⁸.

Lastly, increase number of patients on anti-platelet drugs with emergency dental care required and impracticality of discontinuing these drugs for 7 to 10 days must be weighed against the severity of potential thromboembolic events¹⁹.

CONCLUSION

The patients on low dose aspirin can safely undergo routine outpatient minor oral surgical procedures, without alteration of their regular therapeutic aspirin regimen and without additional medical intervention.

RECOMMENDATION

It is recommended that both physicians and dentists should be educated in how to treat

dental patients who are receiving anticoagulation therapy. Local haemostatic measures like suturing, direct gauze packing, resorbable gelatine sponge, oxidized cellulose, or microfibrillar collagen can be used to stop anticipated bleeding.

CONFLICT OF INTEREST

This study has no conflict of interest to declare by any author.

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