

Frequency of Post-Operative Bleeding after Dental Extraction among Patients on Chronic Low Dose Aspirin

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¹ Conception of study

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Abstract

Introduction: Anti-platelet drugs are widely used for primary and secondary prevention of cardiovascular and cerebrovascular diseases. The purpose of this study was to determine the frequency of post-operative bleeding after dental extraction among patients on chronic low-dose aspirin.

Materials and Methods: This is a descriptive case series in which a total of 378 patients on low-dose aspirin (75-100mg) for various cardiovascular causes were included in the study. The duration of the study was from November 2016 to May 2017 total of 6 months.

Results: Out of 378 cases, 247 patients (65.4%) were male while 131 patients (34.6%) were female. The mean age of the patients was calculated as 54.8±13.1 years. Regarding pre-morbid, 127 patients (33.6%) were diabetic and 109 patients (28.9%) were hypertensive. The mean duration of taking aspirin was calculated as 3.5±1.7 years. Post-extraction bleeding was noted in 16 patients (4.2%). This was statistically insignificant i.e p-value >0.005.

Conclusion: We concluded that simple tooth extraction is safe in patients on a long-term maintenance dose of aspirin, without discontinuation of the drug as it doesn't cause any significant postoperative bleeding.

Keywords: Aspirin, Dental extraction, Post-extraction bleeding.

Introduction

Aspirin is a drug that belongs to the NSAIDs group part of salicylic acid derivative and has anti-inflammatory, antipyretic, and analgesic effects.¹ It inhibits the cyclooxygenase pathway and thromboxane A2 causing reduced platelet aggregation which is irreversible, leading to a reduction in the incidence of embolism.² Aspirin inhibits platelet function irreversibly for 10 days.¹

In clinical practice, a lot of patients, visiting oral & maxillofacial surgeons for tooth extraction or other surgical procedures, are on anti-platelet therapy for a long time, for primary or secondary prevention of cardiovascular or cerebrovascular events. In this regard, the most commonly prescribed anti-platelet drug is Aspirin (Acetylsalicylic acid), given 75mg daily.³ Such patients put the maxillofacial surgeons in a dilemma whether to stop aspirin before the procedure or not, as the literature is controversial in this aspect, making different opinions from related experienced personnel.²

Multiple studies have been performed in this regard, to assess the effect of aspirin on postoperative bleeding in patients undergoing tooth extraction. Various studies advocated that aspirin should be stopped before tooth extractions or other minor oral surgical procedures.⁴ Cessation of aspirin however can result in associated systemic thromboembolic events (such as deep vein thrombosis and pulmonary embolism) that are more dangerous than postoperative bleeding after extraction.⁵

Later studies favoured that aspirin should not be discontinued in patients taking it chronically, for any logical reason as mentioned earlier, and tooth extraction or other maxillofacial procedures can be safely performed with no worse outcomes. Anyhow, precautions or local measures should be taken to avoid post-extraction prolonged bleeding.^{6,7}

Other studies supported the fact that patients on low-dose aspirin (75-100mg) didn't show any significant post-operative bleeding with minor surgical procedures.⁸

Many studies suggest that patients on dual antiplatelet therapy show significant postoperative bleeding as compared to single antiplatelet therapy.⁹

The purpose of the study is to check the frequency of post-operative bleeding in patients on low-dose aspirin after extraction.

Materials and Methods

This is a Descriptive case series conducted in the department of oral and maxillofacial surgery of Armed Forces Institute of Dentistry, Rawalpindi for a period of six months i.e. from November 2016 to May 2017.

A sample size of 378 was calculated using the WHO calculator with a confidence level of 95%, the anticipated population proportion is 3.938, and the absolute precision required is 1.965%. Non-probability purposive sampling technique was adopted.

A total of 378 patients were included in the study. Inclusion criteria of the study included patients who were already on low dose aspirin (75-100mg) from a period of 1 to 8 years for various cardiovascular known comorbidities like (myocardial infarction, angina, etc), patients aged above 40 years and below 70 years, and patients of both genders. Exclusion criteria consisted of patients with anemia, liver disease & polycythemia. Patients with psychiatric disorders, patients with epistaxis, patients with established bleeding disorders like hemophilia & Von willebrand disease. Extraction of teeth was carried out with the use of 2% lidocaine with 1:100,000 epinephrine. The patients were then asked to press on saline-soaked gauze for 30 minutes and assessed for bleeding.

Patients with no post-operative bleeding were discharged with written instructions and reviewed clinically 24 hours after the extraction. Bleeding was labeled positive if the extraction socket was filled with blood without clot formation even after 30 minutes, for such instances the patients were retained for another 30 minutes and asked to press on saline-soaked gauze. Additional local haemostatic measures such as transamine soaked gauze and epinephrine soaked gauze and figure of 8 suturing over the extraction socket were adopted for cases where the bleeding was not controlled by saline-soaked gauze.

Data were analyzed using SPSS version 17, stratification with regard to age gender, and medical condition was carried out. Time duration of aspirin intake was also noted. Post-operative bleeding was noted and expressed in percentage .p-value of < 0.005 was considered statistically significant.

Results

A total of 378 patients were included in this study during the study period of six months from November 2016 to May 2017. Out of 378 cases, 127 (33.6%) were

diabetic and 109 patients (28.9%) were hypertensive and 142 (37.5%) had no known co-morbidities (Table 1).

Duration of intake of aspirin was noted in all individuals and it was divided into two groups of patients on aspirin for less than one year and patients on aspirin for 1 to 8 years.

In the first group (< 1 year) out of 101 patients, 4 patients showed post-operative bleeding and 97 patients had no bleeding. In the second group (1-8 years) out of 277 patients, 12 patients showed post-operative bleeding while 265 patients showed no bleeding.

The mean duration of taking aspirin was 3.5 ± 1.7 years (Table 2). Post-extraction bleeding occurred in 16 patients (4.2%) in total, there was no bleeding in 362 patients (95.8%) in total (Table 3).

Table 1: Stratification with regard to the medical condition

Medical condition	Post-extraction bleeding		Total	P-value
	Yes	No		
Diabetes	11	116	127 (33.6%)	0.008
Hypertension	3	106	109 (28.9%)	
Normal	2	140	142 (37.5%)	
Total	16	362	378	

Table 2: Stratification with regard to the duration of taking aspirin

Duration	Post-extraction bleeding		Total	P-value
	Yes	No		
< 1 year	4	97	101(26.7%)	0.873
1-8 year	12	265	277(60.0%)	
Total	16	362	378	

Table 3: Post-extraction bleeding

Bleeding	Number	Percentage
Yes	16	4.2%
No	362	95.8%
Total	378	100.0

Discussion

The decision regarding the stoppage of antiplatelet therapy before extraction depends on the surgeon's

ability to judge and weigh the benefits versus risks of the associated intake of medicine. Many factors need to be considered while taking this decision. Mandatory factors account for patients intrinsic risk factors for continued or prolonged bleeding, the surgical severity of the procedure undertaken, and the potential risk of thromboembolic events if the antiplatelet therapy is discontinued.⁹

In addition to these factors, hemorrhagic peptic ulcers, an additional ongoing treatment that increases the bleeding risk or hemorrhagic stroke increases the possibility of bleeding.⁹ A meta-analysis of 135,000 patients by the ant platelets trialists showed that prophylactic use of Aspirin in MI, Angina, and stroke reduces mortality by 12% and vascular events by 20-25%.¹⁰

Other risk factors like patient's demographics, gender predisposition, old age, hypertension, obesity, oral hygiene habits, old age, obesity, diabetes, renal and liver failure also account for prolonged postoperative bleeding.¹¹ Studies show that in cases of chronic low dose aspirin intake sudden withdrawal of the drug can be fatal and this increases the risk of cardiovascular disorders by 30%.¹² According to Gerstein NS et al¹³ there is no need for discontinuation of aspirin before planned surgical procedures except for intracranial, transurethral, and ophthalmic surgeries. This favors our results which show no significant post-extraction bleeding i.e. 16 patients (4.2%) out of total 378 patients in total. In contrast to our study, Schrodi et al¹⁴ and Ryzman et al¹¹ reported increased bleeding on surgical manipulation in patients who were on aspirin therapy. However, in both above-mentioned studies gingival inflammation, periodontitis, and poor oral hygiene were major factors contributing towards continued bleeding after minor surgical endeavors. From the above discussion, it can be concluded that post-extraction bleeding is not only dependent on aspirin use, but it also depends upon local factors like periodontitis which leads to hyperaemia and eventually more bleeding postoperatively.¹⁴

Shah et al⁸ also reported increased bleeding complications after tooth extraction in patients taking aspirin, who have undergone tooth extraction due to periodontitis as compared to bleeding which was less in patients who have undergone tooth extraction due to dental caries which does not favor the results of our study.

Hassan S, et al¹⁵ study showed prolonged bleeding time in only 2% of patients after 30 minutes of extraction which is statistically non-significant and favors the result of our study as well. Simple dental

extractions were performed in experimental group patients on continued aspirin therapy ($n=25$) and control group patients who stopped aspirin 7 days before extractions ($n=19$). The experimental group patients were on aspirin doses in the range of 75–300mg. There was no significant post-operative bleeding in the experimental group which did not discontinue the aspirin intake. The aforementioned study favors our result as well.¹⁶

There is the unanimous decision of National Medical and Dental groups against interruption of antiplatelet therapy before minor dental procedures.¹⁷

Many dentists fail to presume the actual threat of acute thromboembolic events on cessation of aspirin therapy. This serious side effect is low but isn't zero in statistics.^{15,17}

Stoppage of aspirin therapy for 7-10 days was thought to be prudent¹⁸ but Sonksen et al¹⁹ showed that interruption of 2 days is viable to control post-operative bleeding. Brennen et al²⁰ recommended not more than 3 days of cessation before dental surgery. Malik AH et al²¹ evaluated 100 patients after minor oral surgery on aspirin therapy none showed any significant bleeding.

A decision regarding the cessation of antiplatelet therapy should be the final decision of the treating physician rather than the operating dentist.¹⁷

In our study, only 4.2% of the patients developed post-operative bleeding after dental extraction, in patients who were already taking aspirin due to some chronic disease or prophylaxis. Most of the studies mentioned above are comparable with our findings.^{12, 13, 15, 16}

The limitation of our study was that we didn't consider patient-related factors such as the habit of smoking, compliance with post-operative extraction instructions such as spitting avoidance of hot and cold food with regard to local causes contributing to postoperative bleeding and haemostasis.

Conclusion

It was concluded in this study that simple tooth extraction is safer in patients who are on a long-term maintenance dose of aspirin, without discontinuing it. So, it is recommended that if the risk of hemorrhagic events is less likely and if post-operative bleeding can be controlled easily by local haemostatic measures then there is no need to stop aspirin before tooth extraction.

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