



A prospective study to examine the bleeding tendency of patients receiving regular low-dose aspirin therapy

Dr. Taha Yaseen Hamad . B.D.S. H.D.D M.Sc

Abstract

The fear of uncontrolled bleeding often prompts medical practitioners to stop aspirin intake for seven to 10 days before any surgical procedure. This study was initiated to evaluate the effect of aspirin on bleeding in patients undergoing oral surgery.

The study group consisted of 39 patients who were subjected to undergo dental extraction. All patients were receiving 100 milligrams of aspirin daily on a regular basis. Patients were randomly divided into two groups: those who stopped the aspirin therapy before the procedure and those who continued the aspirin therapy. One hour before the procedures, all patients underwent a bleeding time test. In addition, the amount of bleeding during the procedure was measured.

The mean (\pm standard deviation) bleeding time was 1.8 ± 0.47 minutes for patients who stopped aspirin therapy one week before the procedure. For patients who continued aspirin therapy, the bleeding time was 3.1 ± 0.65 minutes. The difference was statistically significant ($P = .004$). However, both groups were within the normal bleeding time range, and in both groups, a local hemostatic method was sufficient to control bleeding. No episodes of uncontrolled intraoperative or postoperative bleeding were noted.

Stopping of low-dose aspirin therapy is not a must before oral surgery. Local hemostasis is sufficient to control bleeding.

Key words: bleeding tendency- Aspirin therapy

Clinical Implications. Patients receiving aspirin therapy to prevent blood clot formation may be subjected to emboli formation if the treatment is stopped. The results of this study showed that aspirin therapy could be continued throughout oral surgical procedures. Local measures are sufficient to control any bleeding during surgery.

Introduction

Because of the risk of uncontrolled intraoperative or postoperative bleeding, patients receiving long-term aspirin therapy have been asked to discontinue use of the drug for seven to 10 days before surgery (1-3). However, no double-blind controlled studies support this practice, particularly for

oral surgery. Because continuous low-dose aspirin regimens have become popular in Iraq in the last decade for treating cardiovascular and peripheral vascular diseases (4, 5), patients are asked to stop their regular therapy before undergoing surgical procedures. Moreover, interruption of aspirin

therapy may expose these patients to the risk of developing thromboembolism, myocardial infarction or cerebrovascular accident (6,7).

Until the early 1980s, aspirin was used as an anti-inflammatory, analgesic and antipyretic drug for short periods only (1). The major side effects of aspirin namely, gastrointestinal irritation and ulcers; tendency to develop gingival, nasal and intestinal hemorrhage; and asthma like attacks in asthmatic patients limited administration of the drug to short periods (from two to five days) (8).

Studies conducted since the early 1980s have shown that the antiplatelet effect is elicited at low doses of about 0.5 to 1.0 mg per kilogram per day while the analgesic and antipyretic effects occur only at a daily dosage of 5 to 10 mg/kg, and the anti-inflammatory effect is achieved at a dosage of more than 30 mg/kg/day (9). Thus, low doses of aspirin are sufficient for achieving anticoagulation with reduced side effects. Therefore, within the last decade we have seen a rapid increase in the use of low-dose aspirin as a secondary preventive drug by patients who have cardiovascular and peripheral vascular diseases (10). The increasing popularity of aspirin, either alone or in combination with other drugs, has presented physicians and dentists with the dilemma of whether to advise patients to discontinue aspirin therapy before surgical procedures are performed.

Controversy exists in the literature regarding this issue. Many studies (11, 12) have advocated stopping aspirin therapy seven to 10 days before elective surgery (1). Conversely, other researchers have suggested that aspirin therapy should be continued regardless of the surgical procedure.(13, 14).

Material and Methods

This study was initiated to measure the effect of low-dose aspirin therapy on intraoperative and postoperative bleeding in patients undergoing oral surgery. In addition, the researcher compared the relationship between clinical hemorrhagic complications and the tested bleeding time.

The study group was composed of 39 patients with a mean age (\pm standard deviation) of 52 ± 9.2 years and an age range of 39 to 59 years. The group included 15 women (mean age, 50 ± 9.2 years) and 24 men (mean age, 55 ± 9.1 years) who were directed to undergo dental extractions. All patients were receiving 100 milligrams of aspirin per day on a long-term basis as a secondary preventive drug for cardiovascular or peripheral vascular diseases.

Patients were randomly divided into a study group (19 patients) and a control group (20 patients). Patients in the experimental group continued to receive aspirin therapy, while patients in the control group stopped aspirin therapy seven days before their extraction and did not resume treatment until the day after the surgical procedure. As shown in Table 1, patients in both groups were similar in regard to the indications for aspirin therapy. Anemic patients (that is, those with hemoglobin counts of less than 100 grams per liter) and patients receiving sodium warfarin therapy or other anticoagulant therapy were excluded from the study. The study was conducted in the surgical clinic of Dentistry College/ Mustansirya University and all patients were enrolled in this study with informed consent.

The patient groups did not differ in the complexity of the operative procedures.

Bleeding time test was done (in Al-Karama hospital) for each patient one hour before surgical procedure.

The surgical procedures were divided into three categories:

- simple extractions included removing one tooth without raising a mucoperiosteal flap and without alveoplasty;
- compound procedures included extraction of two teeth without raising a mucoperiosteal flap and with only minor alveoplasty;

Before the procedure, all patients received two cartridges of local anesthetic (2% lidocaine with noradrenaline 1:100000).

Intraoperative bleeding was measured by subtracting the volume of irrigation fluid from the volume of blood accumulated in the suction trap. Blood loss of less than 20 milliliters was considered mild; between 20 and 50 mL, moderate; and more than 50 mL, severe.

Results

The mean (\pm SD) bleeding time was 1.8 ± 0.47 minutes in patients who discontinued low-dose aspirin therapy one week before oral surgery; by comparison, patients who continued aspirin therapy throughout the study period had a bleeding time of 3.1 ± 0.65 minutes. This difference is statistically significant ($P = .004$), but both groups of patients were still within the normal bleeding time range: 1 to 4.5 minutes. In both groups of patients, the bleeding was from the mucosa and the bone.

The patient groups did not differ in the complexity of the operative procedures, and the severity of intraoperative hemorrhage did not differ significantly between the groups. However, the numbers of patients with mild, moderate or severe intraoperative bleeding, (as shown in the figure 1), did not differ significantly between the two groups. In both groups, more intraoperative bleeding was

encountered when extractions were complicated.

In 34 (87 %) of the 39 patients, intraoperative bleeding was controlled with suturing, and local hemostasis was achieved with direct packing with gauze. Severe bleeding occurred in three patients from the study group (one patient underwent simple extraction, two patients underwent a compound procedure) and two from the control group (compound extraction). Application of oxidized cellulose, a potent local hemostatic agent, was not required and transfusions were not necessary for any of those patients. No episodes of uncontrolled postoperative bleeding or other complications were reported during the week after surgery.

Discussion

Some authors recommended the continuation of aspirin therapy before elective dermatologic surgery if the patient's bleeding time was within normal limits (14). They found that bleeding time was prolonged in patients who had been receiving high doses of aspirin. The results of this study showed that when patients received a daily low dose of aspirin (100 mg), their bleeding time remained, without exception, within normal limits.

Other authors advocated stopping aspirin therapy before any surgical procedure performed on a non-emergency basis (2). They found that diffuse postoperative bleeding was associated with preoperative use of high doses of aspirin

High doses of Aspirin results in complete impairment of platelets function and consequent prolonged bleeding time, but at low Aspirin intake, platelets function will not be largely affected and so platelets are still capable of aggregation and closing the injured vessel (15), and that is why

the bleeding time of all our patients still within the normal range.

Patients' bleeding time tests—the only reliable test for the activity of platelets (7, 16) were within the normal range, regardless of whether patients continued or discontinued aspirin therapy and that is why dental extractions, even in multi extractions procedures, did not result in uncontrolled intra-operative or postoperative hemorrhage in patients receiving low-dose aspirin therapy on a long-term basis. No radical steps were needed to stop the bleeding in these patients, and in most cases suturing was the only hemostatic tool used to stop bony or soft tissue blood oozing. Thus, it seems that there is no need to stop low-dose aspirin therapy in most patients, perhaps even in patients with anemia. Although no complication was observed in patients whose aspirin therapy was temporarily stopped, but such discontinuation may induce thrombogenesis.

Conclusion

In contrast to other studies, which involved high-dose aspirin therapy (2, 14) and according to our results in this study, it is suggested that there is no need to expose patients to the risk of thromboembolism, cerebrovascular accident or myocardial infarction before undergoing dental extractions. Consequently, they should continue to receive their daily dose of 100 mg of aspirin during the preoperative period provided their bleeding time test is within normal range.

References

- 1- Conti CR. Aspirin and elective surgical procedures (editorial). *Clin Cardiol* 1992;15(10):709–10.
- 2- Scher KS. Unplanned reoperation for bleeding. *Am Surg* 1996;62(1):52–5.
- 3- Speechley JA, Rugman FP. Some problems with anticoagulants in dental surgery. *Dent Update* 1992;19(5):204–6.
- 4- Secondary prevention of vascular disease by prolonged antiplatelet treatment: Antiplatelet Trialists' Collaboration. *BMJ* 1988;296(6618):320–31.
- 5- Fuster V, Adams PC, Badimon JJ, Chesebro JH. Platelet-inhibitor drugs' role in coronary artery disease. *Prog Cardiovasc Dis* 1987;29(5):325–46.
- 6- Jafri SM, Zarowitz B, Goldstein S, Lesch M. The role of antiplatelet therapy in acute coronary syndromes and for secondary prevention following a myocardial infarction. *Prog Cardiovasc Dis* 1993;36(1):75–83.
- 7- Mielke CH Jr. Aspirin prolongation of the template bleeding time: influence of venostasis and direction of incision. *Blood* 1982;60(5):1139–42.
- 8- Peto R, Gray R, Collins R, et al. Randomised trial of prophylactic daily aspirin in British male doctors. *BMJ* 1988;296(6618): 313–6.
- 9- Patrono C. Aspirin and human platelets: from clinical trials to acetylation of cyclooxygenase and back. *Trends Pharmacol Sci* 1989;10(11):453–8.
- 10- Ferraris VA, Ferraris SP, Lough FC, Berry WR. Preoperative aspirin ingestion increases operative blood loss after coronary artery bypass grafting. *Ann Thorac Surg* 1988;45:71–4.
- 11- Watson CJ, Deane AM, Doyle PT, Bullock KN. Identifiable factors in postprosta-tectomy haemorrhage: the role of aspirin. *Br J Urol* 1990;66(1):85–7.
- 12- Kitchen L, Erichson RB, Sideropoulos H. Effect of drug-induced platelet dysfunction on surgical bleeding. *Am J Surg* 1982;143(2):215–7.
- 13- Ferraris VA, Swanson E. Aspirin usage and intraoperative blood loss in patients undergoing unexpected operations. *Surg Gynecol Obstet* 1983;156(4):439–42.
- 14- Lawrence C, Sakuntabhai A, Tiling-Grosse S. Effect of aspirin and nonsteroidal antiinflammatory drug therapy on bleeding complications in dermatologic surgical patients. *J Am Acad Dermatol* 1994;31(6):988–92.
- 15- Thomason JM, Seymour RA, Murphy P, Brigham KM, Jones P. Aspirin-induced post-gingivectomy haemorrhage: a timely reminder. *J Clin Periodontol* 1997;24(2):136–8.
- 16- Harker LA, Slichter SJ. The bleeding time as a screening test for evaluation of

platelet function. N Engl J Med

1972;287(4):155-9.

Table (1) Indications of Aspirin daily intake

Indications	No of patients	
	Study group (no= 19)	Control group (no= 20)
After myocardial infarction	7	5
Angina pectoris	9	11
After cerebrovascular Accident	3	4

Table 2+ shows the types of surgical procedures for both groups and severity of intraoperative bleeding

Procedure	Study group no = 19							Control group no = 20						
	No of patients	mild bleed		Mod bleed		Sev bleed		No of Patients	mild bleed		Mod bleed		Sev bleed	
		no	%	no	%	no	%		No	%	no	%	no	%
Simple	14	9	64	4	28	1	7	13	9	69	4	30.7	0	0
compound	5	2	40	1	20	2	40	7	3	42	2	28	2	28

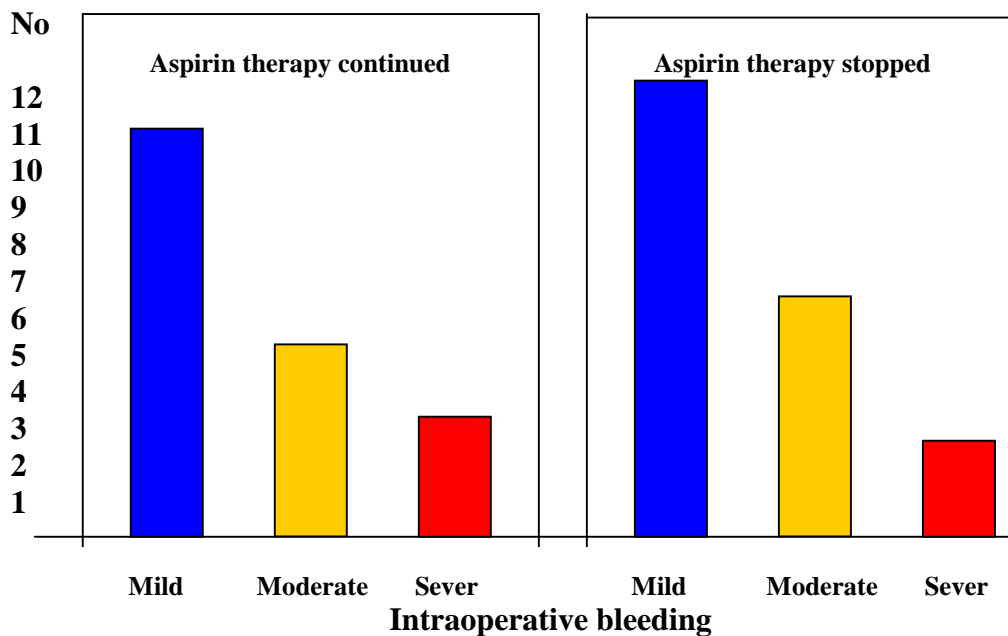


Figure 1. Frequency and severity of intraoperative bleeding in dental patients