

THE EFFECT OF IBUPROFEN ON BLEEDING DURING PERIODONTAL SURGERY

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ABSTRACT

The purpose of this study was to determine the effect of Ibuprofen on bleeding during periodontal surgery. A total of 15 participants attending periodontal clinic at Prince Rashid Military Hospital were recruited, 8 females and 7 males with an age range from 18-55 years. Root planning was performed on both sides of the posterior maxillary teeth. Every participant acted as both controlled and test group. Root planning was performed on the right side of maxillary teeth for the controlled group, and on the left side for the test group. The test group was given 3 doses of 400 mg Ibuprofen on a regime of 10,5,1 hour before surgery while the controlled group was not given medication. Bleeding time and total volume of blood loss was calculated for both groups. There were statistical significant differences in bleeding time and total of blood volume loss between control and test group. The result of this study suggested that the both bleeding time and blood loss during periodontal surgery was increased when Ibuprofen was given.

Key words: Bleeding time, blood loss, periodontal surgery, Ibuprofen.

INTRODUCTION

Non-steroidal anti-inflammatory drugs (NSAI's) are one of the most commonly used medications for both medical and dental conditions. These drugs are known to inhibit inflammatory processes primarily by blocking the conversion of Arachidonic Acid to prostaglandin, thromboxine and prostacycline.¹

Ibuprofen is indicated for symptomatic treatment of Rheumatoid arthritis, osteoarthritis, ankylosing spondylitis and acute gouty arthritis. It is also used as an analgesic for acute tendonitis, bursitis, and primary dysmenorrhea. While in dentistry it is used for post-operative pain.² Many dental practitioners planning to surgical procedures find themselves prompted to discontinue these drugs to avoid bleeding during the surgery.³ Interruption of these drugs might worsen the medical state and expose the patient to a risky condition such as myocardial infarction, cerebro-vascular accident etc.

So the present study was aimed to determine the effect of Ibuprofen on bleeding during periodontal surgery.

METHODOLOGY

A controlled, single blinded, clinical trial was performed to determine the effect of Ibuprofen on bleeding during periodontal surgery. This planned experimental study was conducted by deliberately interfering with the group of study. The study composed of 15 participants attending periodontal clinic at Prince Rashid Military Hospital, 8 were females and 7 males with an age range from 18-55 years. Root planning was carried out on both sides of the posterior maxillary teeth. Every participant acted as both controlled and test group. Root planning was performed on the right side of maxillary teeth for the controlled group, and on the left side for the test group. The test group was given of 400 mg Ibuprofen on a regime of 10,5,1 hour before surgery while the controlled group was not given any

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medication. Bleeding time and total volume of blood loss was calculate! for both groups.

The surgical operation was of the same type and complexity (root planning), and was done on the same arch (maxilla) but different quadrant, the same time in the afternoon (2:00 PM), and by the same operator. The inclusion criteria were systematicaly healthy participants, non-smoker, no history of drug allergy or peptic ulcer, not pregnant, and not on medication that affect platelets function.

The test group was given 3 doses of 400 mg Ibuprofen on a regime of 10, 5, and 1 hour before surgery. 1.8 ml of 2% lidocane with 1:80,000 epinephrines was administered. Muco-periostal flap was elevated, and root planning was performed on the left quadrant of posterior maxilla. The time allowed for each surgery was 60 ± 20 minutes, bleeding time test by Duk’s method was conducted, by making a puncture at the finger tip. The time was recorded from the beginning of bleeding to the end of bleeding. Amount of blood loss was calculated by collection of fluid during surgery using portable aspirator in a graduated beaker. The water used for irrigation during surgery was calculated and subtracted from the total volume of collected fluid after surgery. Saliva is considered negligible since the patients served as his or her own

control and the surgery was done at the same time of the day to avoid any change in the salivary flow.

The control group who were the same test group were called for the performance of the second part of the study. Root planning on the right side of maxilla was performed a week after the first surgery without Ibuprofen administration.

Data were collected, tabulated, and analyzed using t- test (paired sample test). Paired sample t- test is used when there are two related observations for the same group or subject, so it compares the means of two variables for a single group. The level of significance was set at 0.05. Results were discussed, and conclusions were drawn.

RESULTS

Table 1 shows the bleeding time for 15 participants. Prothrombine time (pt) was recorded before surgery with and without Ibuprofen administration. The mean of bleeding time for controlled group without Ibuprofen was (1.93). And for the test group with Ibuprofen was (2.53). The results of paired samples t- test indicate that the mean of bleeding time with Ibuprofen is statistically significantly different from bleeding time without Ibuprofen (t = -2.965, p = .010)

TABLE 1: SHOWS THE BLEEDING TIME AND AMOUNT OF BLOOD LOSS WITH AND WITHOUT IBUPROFEN ADMINISTRATION

Subject No.	Bleeding time		Amount of blood loss	
	With Ibuprofen	Without Ibuprofen	With Ibuprofen	Without Ibuprofen
1	2.5	2	18	12
2	1.5	1	14	10
3	2	1.5	23	17
4	2	1.5	17	11
5	3.5	3	13	10
6	3.5	3	12	10
7	2	2.5	11	9
8	2.5	1.5	18	15
9	3	2	17	16
10	2	1	18	11
11	2	1	15	12
12	3.5	3	17	13
13	3.5	2.5	16	12
14	2.5	2	20	14
15	2	1.5	24	18

TABLE 2: SHOWS THE RESULTS OF PAIRED SAMPLE TEST FOR BOTH BLEEDING TIME AND AMOUNT OF BLOOD LOSS WITH AND WITHOUT IBUPROFEN ADMINISTRATION

Paired Samples Test

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
1 Pair bleeding time with and without Ibuprofen	-6000	.78376	.20237	-1.0340	-1660	-2.965	14	.010
2 Pair blood volume loss with & without Ibuprofen	-4.2000	1.85934	.48008	-5.2297	-3.1703	-8.749	14	.000

Table 1 also shows the blood volume loss for 15 participants. Blood loss was recorded after surgery with and without Ibuprofen administration. The mean of blood loss for controlled group without Ibuprofen was (12.7ml). And for the test group with Ibuprofen was (16.9ml). The results paired samples t- test indicate that the mean of blood loss with Ibuprofen is statistically significantly different from blood loss without Ibuprofen (t= -8.749, p=.000)

Patients were asked for pain during oral surgery, all of the patients revealed less pain when Ibuprofen was taken.

DISCUSSION

Painful disease of the locomotors system forms one of the largest groups of diseases requiring medical treatment. Ibuprofen is one of the most commonly used NSID, it is rapidly absorbed from the stomach, and reaches the peak plasma level within 1-2 hours after oral administration, with a half life of 1.6- 2.5 hours. It is excreted mainly through the kidney; the recommended single dose is 200-600 mg as a daily dose not beyond 2,400mg.⁴

The side effects of systemic treatment with Ibuprofen are usually dose dependent which are closely related to the specific mechanism of these drugs action by inhibiting the prostaglandin synthesis which act as a protective factor in GTI, so that GTT toxicity is the most common adverse reaction such as abdominal pain, nausea, vomiting, arid dyspepsia.^{3,4,5}

Many factors can affect bleeding during surgery such as gender, hormones, anatomical location of the surgery, time of surgery, and general health of the patient. In this study most of the factors were eliminated because each participant acted as both test and controlled case. Also the surgery was done by the same operator at the same time (afternoon), and on the same site (maxilla) but on different quadrant, also the same amount of local anesthesia was administered. To achieve peak plasma level of the drug during surgery the selected regimen of dosage was 400 mg 10, 5, 1 hour preoperative. The results of this study suggested that both the bleeding time and blood loss during periodontal surgery was increased when Ibuprofen was given. This increase in blood loss is relatively small but statistically significant.

This result is in concurrence with previous similar studies which established that Ibuprofen may increase blood loss and bleeding time, but not beyond the normal range.^{6,7}

Ardekian et al⁸ conducted a study to determine the effect of aspirin on bleeding during dental extraction and concluded that it is not necessary to stop aspirin before oral surgery. Some authors⁹ also demonstrated no increase in blood loss in thoracic surgery in patients with prolonged bleeding time. While other studies suggested that NSAD might increase amount of bleeding during surgery while the bleeding time remain within normal limit.¹⁰ Some researches studied this issue during hip surgery, and they concluded that there

was no significant increase in blood loss or bleeding time in the presence of NSAD.¹¹

CONCLUSION

The present study shows that there is increase in the intra-operative bleeding during periodontal surgery when Ibuprofen was pre-administered, Bleeding time was also increased but it was still within normal limits. Patients also reported less pain and more comfort when Ibuprofen was taken.

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