ORIGINAL ARTICLE

INTERRUPTION OF WARFARIN BEFORE DENTAL SURGERY

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ABSTRACT

Objective was to find out whether interruption of warfarin before undergoing dental surgery is necessary and to determine the effects of stopping pre-operative warfarin in Patients undergoing minor oral surgical procedures.

After taking full medical history, clinical examination and an orthopantogram, randomization was then done by convenience sample technique. A preoperative International Normalized Ratio (INR) and coagulation screen were arranged, with Consent on the day of dental surgery. The group I continued taking warfarin as usual (anticoagulant group). The group II stopped taking warfarin 2 days before their dental surgery procedure. If a patient's INR was >2, a further dose of warfarin was omitted. The dental surgery was performed under local anesthesia. Oral antibiotic prophylaxis was given for patients at risk of endocarditis in both groups.

Two hundred and eighteen patients form the study group. 114 were to the anticoagulant group (Group I) and104 to the warfarin withdrawn group (Group II). There were no significant differences between the groups in the mean age, gender, number of teeth extracted. Mean INR for the group I was > 2.5 than the group II, at 1.6 (p=0.001). The overall rate of bleeding complications in the group I was higher than in the group II (30% compared with 14%).

It is concluded that the minor oral surgical procedures can be done without discontinuing the warfarin.

Key Words: Anticoagulant, Bleeding, INR, Oral Surgery, warfarin, Peshawar.

INTRODUCTION

Performing Oral Surgical procedures is one of the main oral healthcare hazards to the patients having any type of coagulopathy, which is mostly caused by the use of its respective anticoagulants. The traditional management entails the interruption of anticoagulant therapy for dental surgery to prevent hemorrhage and its associated complications. However, this clinical practice may increase the risk of a potentially life-threatening thromboembolism to the diagnosed patients.

Warfarin is the most commonly prescribed oral anticoagulant. At present a number of patients are taking oral anticoagulants.[1,2] With a high percentage of ageing population in the Khyber Pakhtunkhwa Province (KPK) and a greater proportion of this population wanting to retain their existing teeth, the number of patients taking warfarin who require dental extractions is likely to increase. Therapeutic levels of warfarin are measured by the International Normalized Ratio (INR). The British Society of Hematology has published guidelines on anticoagulant control which recommend a maximum target INR of 3.5, with a range of 3-4.3 for dental extractions. However, patients who have been taking warfarin are at an increased risk of perioperative thromboembolism, and if the drug is stopped they may be at an increased risk of bleeding.[3,4]

Dental surgery patients may bleed from extraction sockets and may also bleed into the medial pterygoid

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muscle if an inferior dental nerve block is given to extract a molar tooth.[5] A small bleed can produce trismus but a large bleed could also embarrass the airway, causing serious issues.[6] On the other hand, discontinuing warfarin can cause serious embolic complications[7] and may lead to a rebound hypercoagulable state and may also lead to lethal complications.[8-11]

In Pakistan we have been treating patients for a long time having dental issues with close ties from their treating Physicians and Cardiologists and feel that research related to this area is almost non-existing. This clinical area though strongly addressed in the West is at present underdeveloped and neglected in our clinical settings as we have been unable to find local reference articles. In order to fill this wide gap present on this important domain the authors have selected this topic for present study. The study is to compare the complications in patients treating for minor oral surgical procedure with and without interruption of warfarin.

METHODOLOGY

The study was conducted from 2008 to 2011. A total of 218 consecutive patients, from both genders were included in the study. They were referred by their general dental practioners (GDP) and general medical practitioners (GMP) to the maxillofacial unit at Peshawar Dental College and Hospital, Peshawar. They were on warfarin and required dental surgical procedures. Patients with a history of liver disease or Coagulopathies were excluded from the study. To address the ethical issues consent was taken from the patient on proforma.

At the initial consultation a full medical and dental history was taken. The clinical and radiographic examinations such as orthopantogram were done. Randomization was then done by consecutive allocation to the two study groups. A preoperative INR and coagulation screen were arranged on the day of dental surgery. The group I continued taking warfarin as usual and INR recorded regularly. The group II stopped taking warfarin 2 days before their dental surgery. If a patient's INR was >2, a further dose of warfarin was omitted and then the dental surgery was performed. Antibiotic prophylaxis was given for patients at risk of Endocarditis in both groups. Warfarin was discontinued with consent of physician.

Dental surgeries were done under local anesthesia using 2% lignocaine hydrochloride with 1/80,000 adrenaline. Local infiltrations and regional blocks were used in the mandible and maxilla as appropriate. Forceps were carefully and selectively used, whereas elevators were more frequently used for atraumatic dental procedure. A minor oral surgical approach as indicated was performed with minimum mucoperiosteal flap raised and bone cutting done under copious irrigation with normal saline. Each extraction socket was visually examind and packed with suitable amount of oxydize cellulose dressing and sutured with 3/0 polyglactin sutures. Patients were then given a gauze swab to bite on for 30 minutes with instructions to avoid spitting. If hemostasis was not achieved after biting on a gauze swab for 30 minutes it was considered as an immediate bleeding. Paracetomol tablet 1g 6 hourly was prescribed and patients were advised not to use any other form of NSAID analgesia. After the extractions the group II was told to resume taking their warfarin on the same day. All complications were noted and prescription of antibiotics and additional analgesia were also recorded. The collected data were analyzed using SPSS Version 16. The association between different variables was tested using chi-square (x^2) test at 5% level of probability.

RESULTS

Out of two hundred and eighteen patients, one hundred and fourteen belonged to group I and one hundred and four to the group II. (Table 1). There were no significant differences between the groups in terms of: mean age, gender, number of teeth extracted and prophylactic antibiotics given. Out of 114 in group I, 36 was males and in group II, 37 were females. Mean age group I was 67 years with a range of 36-92 years. While in group II the mean age was 66 years with a range of 32-93 years. Number of teeth extracted of group I had range 1-7 teeth with a mean of 2 teeth. For group II it ranged from 1-9 with a mean of 3 teeth. The mean INR for the group I was > 2.5 than

TABLE 1: BASELINE CHARACTERISTICS OF PATIENTS IN THE TWO GROUPS

Parameter	Anticoagulant group (n=114)	Control group (n=104)	P value
Number of Male Patient (%) Number of Female Patients ?	36 (32%)	37 (68)	0.38
Mean age (range)	67±10 (36–92)	66 ±11(30–93)	0.48
Mean number of teeth extracted (range)	2±3 (1–7)	3±4 (1–9)	0.24
Mean INR (range)	2.5±2 (1.2–4.7)	1.6 ±1(1.2–2.3)	<0.001

TABLE 2: POST EXTRACTION COMPLICATIONS COMPARISON OF COMPLICATIONS IN STUDY GROUPS

Complications / Reasons of Seeking Help	Anticoagulant group	Control group (n=104)	P value
Sought help for bleeding at hospital and Patient admitted	4	0	2
Immediate postoperative bleeding	6	0	6
Delayed postoperative bleeding treated by patientat home	18	14	32
Sought help for bleeding by telephone at home	2	0	2
Postoperative antibiotics Prescribed	6	2	8
Additional analgesia given for Pain relief	2	0	2
No Problems seen / None	76	88	164
Total	114	104	218

that for the control (warfarin withdrawn) group, at 1.6 (P<0.001) (Table 1).

Results related to comparison of complication in both study group shows that six patient in group I had post-operative bleeding, whereas eighteen patient in group I had delayed post-operative bleeding and fourteen in group II had delayed post-operative bleeding. Only six patients in group I sought help for bleeding at hospital and 2 were admitted. Patient on antibiotic showed that 6 patients from group I and 2 patients from group II had bleeding complication. In addition, 2 patient from group I needed additional analgesia for pain. (Table 2)

Two patients in the control group had INR levels >2 (2.1 and 2.3 respectively) discontinued warfarin for two day before operation. Table 2 summarizes the main outcomes. The only two patients who sought help for bleeding were in the anticoagulant group. The first developed an oroantral communication (OAC) at the time of removal of an upper first molar; it had been closed immediately by advancing a buccal flap. Bleeding had started again from this site 6 hours later and was stopped by applying pressure. The patient had no further bleeding episodes. The second patient had bleeding from a lower molar socket, which was stopped under local anesthetic with packing, suturing and pressure. The patient was then discharged home and had no further bleeding. The overall rate of bleeding complications in the anticoagulant group was higher than in the control group (30% compared with 14%). The difference was not significant statistically.

There was p>0.005 between the risk of bleeding and by giving prophylactic antibiotics. In addition, no association was found between the risk of bleeding and the number of teeth extracted. Those who experienced bleeding after extraction showed a mean of two teeth extracted, compared with a mean of one tooth extracted, who had no episode of bleeding.

DISCUSSION

Bailey and Fordyce[6] found a delayed bleeding tendency in patients who continued to take warfarin but all episodes were controlled by local measures. Devani et al[12] found a very low incidence of postoperative bleeding in anticoagulated patients undergoing dental extractions. In Previous studies preoperative anticoagulant regimens for dental extractions have been too small to detect significant differences in bleeding.[6,12,13] In this study a higher risk of bleeding in 30% patients in the anticoagulant group and 14% patients in the control group, although there is no significant difference. Two of the bleeding complications were dealt by the patients at home.

Wahl[7,14] in a review found there was little or no difference in terms of blood loss after dental surgery between patients who were receiving anticoagulants and those whose coagulation was normal. In 2400 documented dental operations, he found that only 12 patients experienced bleeding that was uncontrolled by local measures. When the INR falls below 1.5 and exposes the patient to risks of thromboembolism.[12,15] Four patients have been reported to have had fatal embolic complications after anticoagulant treatment was withdrawn,[16-19] supporting the view that anticoagulant treatment should not be stopped before dental extractions without consultation with physician.[22,29]

Various authors have suggested that antibiotics may cause an increase in bleeding in patients taking warfarin and having dental operations.[22,23] The effects of warfarin may be magnified by the suppression of intestinal bacterial flora by antibiotics that can provide a supplementary source of vitamin K. In addition, erythromycin stimulates liver enzymes and potentiates the effects of warfarin and metronidazole inhibits the metabolism of warfarin, again potentiating its effects. Multiple extractions of teeth are generally considered to be a good test of the efficacy of the haemostatic mechanism.[6,24]

CONCLUSION

This study has shown that there are more chances of postoperative bleeding when the patient is on anticoagulant therapy. Nearly all patients bleeding were stopped by local treatment of the extraction socket. Patients who take warfarin has benefit if dental extractions could be performed safely in general practice. This study has shown that dental extractions can be done safely without stopping warfarin treatment.

RECOMMENDATIONS

Minor oral surgery or tooth extraction and related other clinical procedures should be performed in close consultation with treating physicians. Coagulation profile will be done in all patients.

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