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Dental Extraction in Patients on Warfarin Treatment

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Abstract: ***Objective: To assess the incidence of bleeding after dental extractions in subjects taking warfarin continuously before and after extractions whose International Normalised Ratio (INR) was below 3.5 at the time of extraction. Methods: Fifty patients taking warfarin who had been referred to the Oral and Maxillofacial Department, govt. dental college Srinagar for dental extractions were included in the study. Exclusion criteria included patients with an INR < 3.5 or with a history of liver disease or coagulopathies. No alteration was made in warfarin dose. Bleeding from the extraction site was evaluated and recorded immediately after extraction until the second day. Results: A total of 50 patients (34 women and 16 men) aged between 42 and 60 years (mean =51) were included in the present study. All patients underwent simple one-tooth extraction while undergoing warfarin treatment. Oozing, considered mild bleeding and which did not need intervention was seen in 88 % of patients. Moderate bleeding occurred in 12 % of all cases. The INR of the patients ranged from 1.5 to 3.5 with 68 % of patients having INR between 1.6 and 2.0 on the day of extraction. No severe bleeding which needed hospital management was encountered after any of the extractions. The patients who suffered moderate bleeding were returned to the clinic where they received local treatment measures to control bleeding. Moderate bleeding occurred only in six patients, where four had INR between 2.6 and 3.0, and two with INR less than 3. Conclusion: Patients taking warfarin whose INR is up to 3.5 and who have dental extractions in hospital do not have clinically significant bleeds post-operatively.***

Keywords: Warfarin, Postoperative bleedimg, INR, Dental Extractions

1. Introduction

Warfarin is one of the most commonly used oral anticoagulants, acts by antagonizing the effect of vitamin K. Warfarin has been used to decrease the thromboembolic events. The liver metabolizes warfarin into inactive compounds, which are then excreted, mainly into the urine. The half-life of warfarin is approximately 36 hours.[1]

The effect of warfarin is measured by International normalized ratio (INR). It is a prothrombin ratio obtained by dividing the prothrombin time by the laboratory control prothrombin time. The INR for a healthy patient not on warfarin is 1 and the therapeutic INR for those on warfarin therapy typically ranges from 2 to 4, depending on the reason for anticoagulation.[2] To routinely stop warfarin 2 - 3 days before dental extraction in order to avoid the risk of bleeding is common among physicians and dentists. It has been assumed that discontinuing antithrombotic medications for a short period presents negligible risk to the patient. But, the rebound hypercoagulable state with increased thrombin activity after stopping warfarin is associated with the risk of thromboembolism, thereby exposing the patient to a higher risk of recurrent thrombosis, stroke, myocardial infarction (MI), and other coronary event and not interrupting OAT potentially increases the risk of bleeding during and after surgical procedures.[3]

The management of patients who take warfarin has varied, and included stopping 2 days before an operation, reduction in the dose, no change in the dose provided the INR was <4.0, and changing from the normal regular dose of warfarin to one of low molecular weight heparin preoperatively. Current guidelines recommend not stopping oral antithrombotic treatments for simple dental procedures (e.g., dental extraction, dental implant surgery, periodontal surgery). In brief, keeping patients under OAT when a dental extraction has to be performed is the gold standard in the perioperative management of anticoagulation.[4]

The primary objective of this study is to investigate the incidence of postoperative bleeding after tooth extractions

2. Material and Methods

The study was conducted in the department of oral and maxillofacial surgery after clearance from institutional ethical committee. A total of 50 patients on warfarin treatment requiring tooth extraction were included in the study.

Inclusion Criteria
Patient on warfarin treatment with INR <3.5

Exclusion Criteria
Patient with liver disease and other coagulopathy.
INR more than> 3.5

All Tooth extraction were performed under local anesthesia with minimal invasion without stopping or modifying warfarin and a meticulous curettage of the extraction socket was performed.

After extraction of tooth patients were instructed to bite on a piece of sterile guaze for 30 minutes. Patients were then examined to ensure that hemostasis was achieved. After monitoring for about 2 hours patient were sent home with postoperative instructions.

Assessment of postoperative bleeding

- Mild bleeding: Ooze of blood from extraction socket
- Moderate bleeding: When bleeding present on the second day require patient to come back to be managed with local measures
- Severe bleeding: when hospitalization is needed.

3. Results

A total of 50 patients aged between 42 to 60 (34 male, 16 female) were included in the study. The INR ranged from 1.5 to 3.5. All patients underwent tooth extraction while they were undergoing warfarin treatment.

The incidence of postoperative bleeding after dental extraction in patients recruited in this study. Oozing from the extraction socket which was considered mild bleeding and did not need intervention and management by gauze pressure at home was seen in 88.0 % of patients. Moderate bleeding occurred in 12% of all cases. There was no significant difference in bleeding between males and females (*P*.0.05). The INR of the patients ranged from 1.5 to 3.5, with 68 % of patients having INR between 1.6 and 2.0 on the day of extraction (Table 2). No severe bleeding which needed hospital management was encountered following any of the extractions. The patients showing moderate bleeding were returned to the clinic where they underwent local measures to control bleeding. Moderate bleeding occurred in only six patients, where four had an INR between 2.6 and 3.0, and two had an INR of less than 3.

Table I: Bleeding after simple tooth extraction in patients on warfarin treatment

Bleeding	Frequency	Percentage
Mild	44	88
Moderate	6	12
Severe	0	0
Total	50	100

Table II: The INR range

INR Group	Frequency	Percentage
1.6 - 2	34	68
2.1 – 2.5	9	18
2.6 – 3.0	7	14
3.1 – 3.5	0	0
Total	50	100

4. Discussion

Vitamin k antagonists are commonly used in patients with DVT, Artificial heart valves etc. The management of the patients who are on warfarin treatment and have to undergo surgical procedures are at risk of bleeding if appropriate protocols for the control of hemostasis and thromboembolic risk are not applied. According to guidelines developed by academic centre for Dentistry Amsterdam, INR of the patients taking vitamin k antagonist must be<3.5.

Tooth extraction is a procedure where bleeding can be encountered. The question about discontinuation, reducing or monitoring warfarin dose before dental surgeries has been a controversial subject. A definitive, standardized protocol for managing dental surgery in anticoagulated patients is still lacking. In the present study no significant bleeding was noted following tooth extraction. All the patients were on warfarin with INR< 3.0.

A total of 44 patients presented minor bleeding whereas6 patients had moderate bleeding after tooth extraction which was managed by local haemostatic agents.

Buci et al have shown in their study that tooth extraction can be done safely in patient taking anticoagulant without modifying anticoagulant therapy. The results were similar to that shown in our study. In the present study no local measures were used following tooth extraction except in cases were moderate bleeding was encountered.

According to some studies there is no significant difference in bleeding tendency in patients whose warfarin treatment is discontinued prior to the treatment when compared to patients who continue to take warfarin. The present study also supports recommendations suggesting that warfarin discontinuation is not necessary for dental extraction when INR is monitored.

5. Conclusion

Warfarin is most commonly used anticoagulant and carries the risk of bleeding. It is very important to evaluate the patients for dose modification during surgical intervention. The present study has shown that simple teeth extraction in patients on warfarin treatment can be performed safely without high risk of bleeding but providing that the INR is equal or less than 3.0 at the day of extraction.

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