

### IN BRIEF

- Dental extractions can be safely performed on patients receiving warfarin therapy without stopping or altering the dose of anticoagulant.
- The chances of a thromboembolic attack may be significantly higher than the chance of postoperative bleeding when anticoagulant medication is temporarily stopped.
- Mechanical pressure may be very important and beneficial in stopping postoperative bleeding compared with other alternatives.

# Postoperative bleeding and oral anticoagulants

Evaluation of dental extractions, suturing and INR on postoperative bleeding of patients maintained on oral anticoagulant therapy **S. Al-Mubarak,<sup>1</sup> N. Al-Ali,<sup>2</sup> M. Abou Rass,<sup>3</sup> A. Al-Sohail,<sup>4</sup> A. Robert,<sup>5</sup> K. Al-Zoman,<sup>6</sup> A. Al-Suwed<sup>7</sup> and S. Ciancio<sup>8</sup>**

## ABSTRACT

### Objective

To examine the consequences of temporary withdrawal of warfarin and/or suturing on bleeding and healing pattern following dental extractions.

### Methods

Two hundred and fourteen patients on long-term oral anticoagulation (warfarin) therapy scheduled for dental extraction were randomly divided into four groups: no suturing and discontinued (group 1) or continued warfarin (group 2), and suturing and discontinued (group 3) or continued warfarin (group 4). International normalised ratio (INR) was determined at different time points (baseline, days 1, 3 and 7).

### Results

Discontinuing warfarin reduced INR level significantly at day 1, which subsequently reached  $<1.5$  in 96 out of 104 patients (group 1 and 3). Statistical comparisons among the different treatment groups did not reveal any significant difference regarding bleeding status or healing pattern. Interestingly, patients who received sutures showed higher but insignificant incidence of bleeding postoperatively compared to their respective controls.

### Conclusion

Dental extractions may be safely performed for patients on anticoagulation therapy provided the INR level is kept  $\leq 3.0$  and effective measures of local haemostasis are administered. The decision to suture should be made on case-by-case basis, as the trauma associated with soft tissue handling might outweigh its advantages in certain situations like simple extractions.

## EDITOR'S SUMMARY

As detailed elsewhere in this issue, the subject of how best to deal with patients on oral anticoagulants who require invasive dental procedures is often confused and frequently vexed. The need for good research in this area has been paramount and this paper represents the best of such investigations in the real world situation.

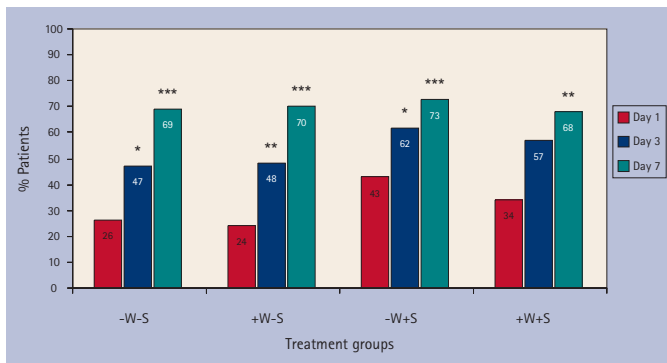
The authors express their desire to resolve controversy over what is or what is not the most favourable treatment option and to create consensus which in turn will become standard, and best, practice in their particular geographical region. However, such a laudable aim may be applied not only regionally but also internationally since this is one area of therapy that transcends culture and place due to its fundamental nature. Indeed the path has already been beaten in the form of acceptance of the standardised, international normalised ratio (INR), itself brought about through consensus. The study adds weight to the evidence sifted by the members of the organisations who jointly developed the new guidance published in this issue (*BDJ* 2007; **203**: 387-393). This states that within certain boundaries the argument for continuing oral anticoagulant therapy concurrent with invasive dental treatment is stronger than for ceasing it and risking the greater consequence of a haemoembolic event.

The prophylactic, and anticipatorily beneficial, use of local haemostatic techniques and agents is also given prominence here, and this is entirely right given that the more that can be done to reduce trauma and enhance clotting and healing has to make complete clinical sense. With more of the population receiving this therapy now and in the future, it is increasingly likely that we will all come across such patients; at which time we will now be even better placed to recommend the most favourable course of treatment.

The full paper can be accessed from the *BDJ* website ([www.bdj.co.uk](http://www.bdj.co.uk)), under 'Research' in the table of contents for Volume 203 issue 7.

Stephen Hancocks OBE,  
Editor-in-Chief

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Wound healing following dental extraction at days 1, 3 and 7 p value versus day 1 (McNemar test); \*p < 0.05, \*\*p < 0.01, \*\*\*p < 0.001

#### FULL PAPER DETAILS

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## AUTHOR QUESTIONS AND ANSWERS

### 1. Why did you undertake this research?

Dental extractions for patients on anticoagulants are associated with a high risk of postoperative bleeding, whereas any modification in the anticoagulation regimen carries a risk of thromboembolism. We noticed that in our region, there is no standard regimen used to deal with patients on anticoagulants and that sutures are often used even with simple extractions. We therefore attempted to examine the effects of oral anticoagulation withdrawal with or without suturing on postoperative bleeding following single and serial dental extractions.

### 2. What would you like to do next in this area to follow on from this work?

Many hospitals in our region do not have a standard written protocol on the management of patients maintained on anticoagulants before dental extractions; the recommendations of haematologists are usually followed after consultation prior to extraction. We would therefore like to implement a protocol that can be universally accepted in the entire region. We are planning to unify and organise the communication between haematologists, cardiologists and dentists relative to this issue, and believe that such arrangements may reflect positively to patients' general well-being. We would also like to undertake further research into particles from resorbable sutures that may be absorbed into fresh extraction sockets, and their side effects, if any.

## COMMENT

The authors present a well-designed, controlled clinical study evaluating the consequences of withdrawal of warfarin and/or suturing on bleeding after dental extractions. The significance of using the international normalised ratio (INR) to determine the relative risk of postoperative bleeding after dental extractions is carefully explained. Two hundred and fourteen patients were divided into four groups: Group 1 discontinued warfarin and received no suturing, Group 2 continued warfarin with no suturing, Group 3 received suturing and discontinued warfarin and Group 4 continued warfarin and received suturing. Bleeding frequency at day 1 postoperatively was significantly less in patients with INR from 1–2, or >2–3, compared with those patients with an INR >3. The findings from this study support the concept that patients with an INR >3.0 can safely have from 1–5 teeth removed with minimal ensuing bleeding complications.

The findings of the present article support those reported by Evans *et al.*,<sup>1</sup> who investigated whether patients who were taking warfarin and had an INR within the normal therapeutic range required cessation of anticoagulation therapy prior to dental extractions. They concluded that continuing warfarin when the INR is <4.1 may lead to an increase in minor post-extraction bleeding, but found no evidence of an increase in clinically important bleeding.

Wahl<sup>2</sup> reviewed the literature comparing patients whose anticoagulant therapy was withdrawn before dental procedures with those who received continuous anticoagulant therapy. Serious embolic complications, including death, were three times more likely to occur in patients whose anticoagulant therapy was interrupted than were bleeding complications in patients whose anticoagulant therapy was continued (and whose anticoagulation levels were within or below therapeutic levels). Interrupting therapeutic levels of continuous anticoagulation for dental surgery is not based on scientific fact, but seems to be based on its own mythology.

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