The effects of combined oral anticoagulant–aspirin therapy in patients undergoing tooth extractions

A prospective study

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Anticoagulant and antiplatelet drugs are used widely for long-term prevention of arterial and venous thrombosis. In addition to the increasing number of patients receiving oral anticoagulant therapy (OAT), a growing number of patients are taking combined OAT and antiplatelet (mostly aspirin) therapy.[1] It is estimated that about four of 10 patients receiving OAT in the United States also are receiving an antiplatelet agent.[2] It has been strongly recommended that combined OAT-aspirin therapy be used only in patients with prosthetic heart valves.[3-5] Although the benefits of receiving combined OAT-aspirin therapy for stroke prevention in patients with atrial fibrillation often do not outweigh the risks, study results have shown that 20 to 25 percent of patients with atrial fibrillation were receiving

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ABSTRACT

JADA CE CONTINUING EDUCATION ARTICLE 2

Background. The authors conducted a study to evaluate the effect of combined oral anticoagulant–aspirin therapy on postoperative bleeding in patients undergoing tooth extractions.
Methods. A total of 213 patients were divided into three groups of 71 participants each. Patients in group A received combined anticoagulant-aspirin (100-milligram prophylactic dose) therapy. Patients in group B received oral anticoagulant therapy. Patients in group C received aspirin therapy (100-mg prophylactic dose). Bleeding was marked as an "event" if it met the following criteria: the bleeding continued beyond 12 hours, patient had to call the surgeon or return to dental practice or emergency department, bleeding resolved with large hematoma or ecchymosis within the oral soft tissues, or required a blood transfusion.
Results. Mean international normalized ratio (INR) (standard deviation) was 2.43 (0.61) in group A, and 2.45 (0.60) in group B. Postoperative bleeding occurred in three (4.2 percent) participants in group A, two (2.8 percent) participants in group B and no (0.0 percent) participants in group C. The authors found no statistical significance in postoperative bleeding between these three groups ($\chi^2 = 2.867$, $P = .238$). All cases of hemorrhage were controlled easily by using local hemostatic measures.
Conclusion. Tooth extractions can be performed safely while patients continue to receive combined anticoagulant-aspirin therapy.
Clinical Implications. In patients receiving combined anticoagulant-aspirin therapy, simple tooth extractions can be performed safely without discontinuing either oral anticoagulant or antiplatelet therapy if their INRs are within therapeutic range and appropriate local hemostasis measures are provided.
Key Words. Anticoagulants; anticoagulation therapy; aspirin; hemostasis; oral surgery; tooth extraction.
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combined anticoagulant-antiplatelet therapy.[6,7] Adding aspirin to OAT is a rational therapeutic approach for patients receiving anticoagulation therapy in whom cardiovascular prophylaxis is indicated. Despite the advantages of this combined therapy, the incidence of major bleeding increases in nonsurgical patients who are receiving combined therapy,[5,7,8] and there is a higher risk of experiencing prolonged and excessive bleeding during and after undergoing surgical procedures. Nevertheless, discontinuing either OAT or aspirin therapy preoperatively can expose patients to the risk of experiencing a thromboembolism.[9-14]

Managing the care of patients who are undergoing oral surgery and are receiving OAT has changed during the past decade, and most reports do not support discontinuing OAT for patients undergoing tooth extractions.[9,15-19] Similar recommendations are given for patients who are undergoing oral surgery and receiving antiplatelet therapy.[19-24] To our knowledge, no prospective clinical studies of postoperative bleeding risk in dentistry that included patients receiving combined OAT-aspirin therapy have been published. This category of patients usually has been excluded from research concerning oral surgery in patients taking OAT, because the main focus of previous studies was the isolated effects of OAT on postoperative bleeding.

We conducted a prospective study to evaluate the effect of combined OAT-aspirin therapy on postoperative bleeding in patients undergoing tooth extractions.

METHODS

The Ethics Committee of the Dental Clinic of Vojvodina, Faculty of Medicine Novi Sad, Serbia, approved the study protocol, and we obtained written informed consent from all of the participants. We conducted a prospective clinical study from March 1, 2005, through March 31, 2011. We recruited consecutively patients who had been referred by their dentists and physicians to the Department of Oral Surgery, Dental Clinic of Vojvodina, University of Novi Sad, Serbia, for tooth extraction.

We included in the study patients who required simple extraction of one or more teeth involving the use of local anesthetic but without the need for a mucoperiosteal flap. We excluded from the study patients with liver or renal diseases, those taking medications that affect hemostasis (combined antiplatelet therapy, nonsterioidal anti-inflammatory drugs, heparin) and those with history of serious hemorrhage after tooth extractions before they began receiving OAT or aspirin therapy.

After complete data collection, which included patients' histories, we assigned participants who received combined OAT-aspirin (a daily 100 milligram prophylactic dose) therapy to group A. One author (B.B.P.), who did not perform surgery and was masked as to the outcomes, selected participants for group B (those who received oral anticoagulant therapy) and group C (those who received aspirin therapy [a daily 100 mg prophylactic dose]) who had the same number of extractions as did those in group A. We also selected participants for group B who matched those in group A with respect to international normalized ratio (INR) value. All participants continued to take their medications before and after oral surgery.

In accordance with American Heart Association guidelines,[25] we administered antibiotic prophylaxis to participants who were at risk of developing endocarditis. We determined the INR value for each participant in groups A and B on the day of the dental procedure. The same oral surgeon (B.V.B.) performed all extractions on an outpatient basis with minimal surgical trauma. Local anesthesia was achieved by means of 2 percent lidocaine with 1:80,000 epinephrine, and we did not use more than two ampoules (4 milliliters) for each participant. We used the local infiltration method and intraligamentary injection technique whenever possible, although in some cases we also had to use the inferior alveolar nerve block.[26]

We used the same local hemostatic modalities for all three groups of participants. We packed extraction sockets with collagen sponge, without primary wound suturing. Local pressure was applied afterward; we instructed participants to hold sterile gauze in a firm bite for 30 minutes. We examined all participants for postoperative bleeding 30 minutes and two hours after the procedure, as well as on the first, second and fifth days after the procedure. We determined bleeding to be an "event" by using Lockhart and colleagues'[27] definition: the bleeding continued for more than 12 hours, the patient had to call the surgeon, return to dental practice or go to the emergency department, the bleeding resolved with large hematoma or ecchymosis within the oral soft tissues, or the patient required a blood transfusion.

In cases of postoperative bleeding, the first measure we used was applying a superficial gauze tamponade to the wound for 10 minutes.

ABBREVIATION KEY. INR: International normalized ratio. **OAT:** Oral anticoagulant therapy.