Zahnärztliche Chirurgie bei Patienten mit Antikoagulantientherapie

R. Schmelzeisen

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Biomechanics/risk management (Working Group 2).

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Abstract

INTRODUCTION: The remit of this workgroup was to update the existing knowledge base in biomechanical factors, navigation systems and medications that may affect the outcome of implant therapy.

MATERIAL AND METHODS: The literature was systematically searched and critically reviewed. Five manuscripts were produced in five specific topics identified as areas where innovative approaches have been developed in biomechanical factors, navigation systems and medications that may affect the outcome of implant therapy.

RESULTS: The results and conclusions of the review process are presented in the following papers, together with the group consensus statements, clinical implications and directions for future research: * To what extent do cantilevers affect survival and complications of implant supported restorations in partially dentate patients? * To what extent does the crown-implant ratio affect survival and complications of implant supported restorations? * A systematic review on the accuracy and the clinical outcome of computer-guided template based implant dentistry. * What is the impact of systemic bisphosphonates on patients undergoing oral implant therapy? * What is the impact of anticoagulants on patients undergoing oral implant therapy?
What influence do anticoagulants have on oral implant therapy? A systematic review.

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Abstract

OBJECTIVES: This systematic review aims to assess the risks (both thromboembolic and bleeding) of an oral anticoagulation therapy (OAT) patient undergoing implant therapy and to provide a management protocol to patients under OAT undergoing implant therapy.

MATERIAL AND METHODS: Medline, Cochrane Data Base of Systematic Reviews, the Cochrane Central Register of Controlled Trials and EMBASE (from 1980 to December 2008) were searched for English-language articles published between 1966 and 2008. This search was completed by a hand research accessing the references cited in all identified publications.

RESULTS: Nineteen studies were identified reporting outcomes after oral surgery procedures (mostly dental extractions in patients on OAT following different management protocols and haemostatic therapies). Five studies were randomized-controlled trials (RCTs), 11 were controlled clinical trials (CCTs) and three were prospective case series. The OAT management strategies as well as the protocols during and after surgery were different. This heterogeneity prevented any possible data aggregation and synthesis. The results from these studies are very homogeneous, reporting minor bleeding in very few patients, without a significant difference between the OAT patients who continue with the vitamin K antagonists vs. the patients who stopped this medication before surgery. These post-operative bleeding events were controlled only with local haemostatic measures: tranexamic acid mouthwashes, gelatine sponges and cellulose gauzes's application were effective. Post-operative bleeding did not correlate with the international normalised ratio (INR) status. In none of the studies was a thromboembolic event reported.

CONCLUSIONS: OAT patients (INR 2-4) who do not discontinue the AC medication do not have a significantly higher risk of post-operative bleeding than non-OAT patients and they also do not have a higher risk of post-operative bleeding than OAT patients who discontinue the medication. In patients with OAT (INR 2-4) without discontinuation, topical haemostatic agents were effective in preventing post-operative bleeding. OAT discontinuation is not recommended for minor oral surgery, such as single tooth extraction or implant placement, provided that this does not involve autogenous bone grafts, extensive flaps or osteotomy preparations extending outside the bony envelope. Evidence does not support that dental implant placement in patients on OAT is contraindicated.
Management of patients on warfarin by general dental practitioners in South West Wales: continuing the audit cycle.

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Abstract

AIMS: To ascertain the current management protocols of patients on warfarin by general dental practitioners (GDPs) in South West Wales and to compare these findings with current guidelines and the results from a previous audit published in 2003.

MATERIALS AND METHODS: A questionnaire similar to that used in the first audit was sent to 447 GDPs in South West Wales. In addition, questions were included on factors which might affect international normalised ratio (INR), the timing of pre-operative INR assessment and the risk of bleeding associated with implant surgery. GDPs’ details were derived from the online GDC database of registered dental practitioners. Registered specialists and GDPs who practised only orthodontics were excluded.

RESULTS: Of the 447 questionnaires distributed, 332 (74%) were returned. Eight percent (n = 26) of the respondents did not treat patients on warfarin. Two hundred and forty-seven respondents (74%) considered implant placement as a procedure with high risk of bleeding, with inferior dental block, sub-gingival restorations and sub-gingival debridement receiving a lower response (45%, 28% and 12%, respectively). When planning a high risk procedure, 206 respondents (63%) indicated they would seek advice from a cardiologist or general medical practitioner; none of the respondents would advise the patient to reduce their warfarin dose, while 1% indicated they would ask the patient to stop taking warfarin without seeking any medical opinion. A total of 278 respondents (84%) stated they would check the INR before treatment and of these, 214 (65%) indicated they would do so within 24 hours of treatment and 60 (18%) within 48 hours. Ten respondents said they would not normally check INR. One hundred and twelve respondents (34%) considered 2.5 as the safe upper INR limit for performing high risk procedures, 21 (6%) considered an INR of between 1 and 2 as the safe limit, 99 (30%) considered INR of 3 as safe, 36 (10%) considered 3.5 as safe and 36 (10%) considered an INR of 4 as safe. Finally, 286 respondents (86%) considered drug interactions and 236 (71%) considered alcohol as significant influencing factors on INR.

CONCLUSIONS: The findings demonstrate a broad change in practice towards the new recommendations produced in 2001 but also highlight that further education and support may be necessary, as well as greater consistency in published guidelines.
Utility of an international normalized ratio testing device in a hospital-based dental practice.


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Abstract

OBJECTIVES: The authors aimed to evaluate the utility of an in-office international normalized ratio (INR) testing device in identifying patients with INR test values considered out of the normal range for dental procedures.

METHODS: This prospective cohort study involved use of an INR testing device to obtain INR test values in the dental office for patients thought to be at risk of experiencing bleeding complications after undergoing invasive dental procedures. The authors recorded demographic, social and medical history data, as well as clinical signs and symptoms of liver disease. The authors considered an INR out of range if it was greater than or equal to 1.4 for patients with potential liver disease and greater than 3.5 for patients receiving warfarin.

RESULTS: The authors completed an in-office INR test for 66 patients receiving warfarin whose INR had not been tested within the preceding 48 hours and 34 patients suspected of having liver disease. Eleven (17 percent) patients receiving warfarin and seven (21 percent) patients suspected of having liver disease had INR values considered out of range. Dental treatment was deferred for eight of 11 patients in the warfarin group who had INR values in the range of 3.6 to 7.4, while three others had dental procedures without bleeding complications. Six of seven patients who had documented or suspected liver disease and an out-of-range INR (range 1.5-2.5) underwent their dental procedures without experiencing bleeding complications.

CONCLUSIONS: Use of an in-office INR test indicated a high incidence of elevated INR values. The results of this study point to the importance of obtaining current INR values before performing invasive dental procedures for patients receiving warfarin therapy whose INR values have not been tested recently, and for patients thought to be at risk of developing or having liver disease.

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Antithrombotic agents: implications in dentistry.

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Abstract

Thrombosis and the complicating emboli that can result are important causes of illness and death. Thrombosis is of greater overall clinical importance in terms of morbidity and mortality than all of the hemorrhagic disorders combined. Agents such as heparin, low-molecular weight heparin, warfarin, aspirin, ticlopidine, clopidogrel, and tirofiban are used to prevent venous or arterial thrombosis. Patients taking these antithrombotic agents may be at risk for excessive bleeding after invasive dental procedures. The current antithrombotic agents used in medicine are reviewed, and the dental management of patients taking these agents is discussed.

Management of dental patients taking common hemostasis-altering medications.

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Abstract

OBJECTIVE: Millions of patients worldwide are taking medications that alter hemostasis and decrease the risk for thromboembolic events. This systematic review is intended to provide recommendations regarding optimal management of such patients undergoing invasive dental procedures. The primary focus of this report is on warfarin therapy, although issues related to heparin and aspirin are briefly discussed because of the frequency with which they are encountered in dental practice.

STUDY DESIGN: The review of literature and development of recommendations was based on the Reference Manual for Management Recommendations for the World Workshop in Oral Medicine IV (WWOM IV). A total of 64 publications were identified for initial review. From these publications, the following types of articles were critically analyzed using WWOM standard forms: randomized controlled trials (RCT), non-RCT studies that assess effects of interventions, and studies that assess modifiable risk factors. Development of recommendations was based on the findings of these reviews as well as expert opinion.

RESULTS: The following evidence-based recommendations were developed: (1) For patients within the therapeutic range of International Normalized Ratio (INR) below or equal to 3.5, warfarin therapy need not be modified or discontinued for simple dental extractions. Nevertheless, the clinician's judgment, experience, training, and accessibility to appropriate bleeding management strategies are all important components in any treatment decision. Patients with INR greater than 3.5 should be referred to their physician for consideration for possible dose adjustment for significantly invasive procedures. (2) A 2-day regimen of postoperative 4.8% tranexamic acid mouthwash is beneficial after oral surgical procedures in patients on warfarin. (3) It is not necessary to interrupt low-dose aspirin therapy (100 mg/day or less) for simple dental extractions.
CONCLUSION: For most patients undergoing simple single dental extractions, the morbidity of potential thromboembolic events if anticoagulant therapy is discontinued clearly outweighs the risk of prolonged bleeding if anticoagulant therapy is continued.

Frequency of bleeding following invasive dental procedures in patients on low-molecular-weight heparin therapy.

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Abstract

PURPOSE: The purpose of this study was to determine the frequency of bleeding complications after invasive dental procedures in patients on low-molecular-weight heparin (LMWH) therapy.

MATERIALS AND METHODS: A chart review of patients who underwent invasive dental procedures while on LMWH therapy was conducted. The following information was obtained: demographics, medical history, social history, medications, relevant laboratory values, postoperative bleeding events, and use of local hemostatic agents and blood products.

RESULTS: Forty-one patients (21 men) were identified with 42 dental appointments. The mean age was 48 years (range, 16 to 78 years). Thirty-seven patients (90%) were on LMWH therapy for deep venous thrombosis prophylaxis. Thirty-one patients (76%) were on concomitant medications that may potentiate bleeding. Multiple dental extractions (range, 2 to 14 teeth) were performed during 19 dental appointments. Twenty-one appointments were for single-tooth extraction and 2 were for soft tissue biopsies. Three patients (7%) had postextraction bleeding events. All 3 patients were on LMWH (enoxaparin) and warfarin therapy concurrently. One patient had persistent bleeding after extraction of 4 teeth (international normalized ratio, 1.6), which was successfully controlled with topical thrombin, administration of vitamin K and fresh frozen plasma, and discontinuation of enoxaparin and warfarin. Postoperative bleeding in the other 2 patients was managed successfully with local hemostatic measures and home care instructions.

CONCLUSION: Our study suggests that, although postoperative bleeding in patients on LMWH therapy alone is rare to nonexistent, patients on warfarin and LMWH may be at increased risk of bleeding after invasive dental procedures.
Safety of dental implant surgery in patients undergoing anticoagulation therapy: a prospective case-control study.

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Abstract

Objectives: Several studies have described oral surgical procedures in patients receiving anticoagulant therapy, but no prospective studies on dental implant surgery during anticoagulant treatment are currently available, and only a limited number of case reports refer to endosseous dental implant treatment in these patients. In the setting of oral surgery, it has been suggested that anticoagulant treatment is not required when the International Normalized Ratio (INR) is <4 and local haemostatic measures are applied. The purpose of this preliminary study was to evaluate the incidence of bleeding complications following surgical implant therapy in a group of 50 consecutive patients receiving oral anticoagulant therapy (warfarin) without interruption or modifications to their therapy (group A).

Materials and methods: One hundred and nine otherwise healthy patients comparable for age, sex, extent and site of the implant surgical procedure formed the control group (group B). In both groups, a standard protocol of local haemostasis, including non-reabsorbable sutures and compressive gauzes soaked with tranexamic acid, was applied. Surgeons, blind to the group allocation, performed all the procedures in an outpatient setting.

Results: Two and three late-bleeding complications were reported in group A and group B, respectively, without significant difference in the bleeding risk (relative risk = 1.45; P= 0.65; 95% confidence interval 0.2506-8.4271). These complications were managed using a compressive gauze soaked with tranexamic acid at the site of the surgical wound.

Conclusion: According to our preliminary results, local haemostasis in dental implant surgery is able to prevent bleeding complications in patients on oral anticoagulants, allowing these surgical procedures to be performed on an outpatient basis.

Implantate bei Marcumarpatienten, erste Ergebnisse

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Zusammenfassung:
Die Frage der Veränderung des antikoagulatorischen Regimes vor Implantatinsertion ist nach wie vor offen. Die vorliegende Arbeit berichtet über erste Ergebnisse der insertion von