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Bleeding after tooth extraction in patients taking aspirin and clopidogrel (Plavix®) compared with healthy controls

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Abstract

The risk of perioperative bleeding is high in patients who take aspirin and clopidogrel after a percutaneous coronary intervention, and whether to stop the drugs is a matter of concern for dentists. The aim of this study was to answer the specific question: should aspirin and clopidogrel bisulphate (Plavix®) be discontinued during a conventional forceps extraction? We studied 64 patients during the first year after percutaneous insertion of coronary stents who were taking aspirin (ASA) 80 mg and clopidogrel (Plavix®) 75 mg, and 50 healthy patients who were to have a conventional forceps extraction at this polyclinic in 2013-2014 and acted as controls. Clinical details (underlying diseases; number of roots; type of tooth; type of haemostasis; and bleeding immediately, 30 minutes, and 48 hours after intervention) were compared. We evaluated 114 patients with the mean (range) age of 56 (43–76) years, and there were no significant differences in demographic data, underlying diseases, type of tooth, number of roots, and dose of anaesthetic between the groups. There were also no significant differences in the number of bleeds immediately and 30 minutes after intervention (P = 0.310 and 0.205). The time that the last dose of aspirin had been taken correlated with 30-minute haemostasis (20 compared with 12 hours, p=0.037). During the 48 hours after the intervention, there were no uncontrolled bleeds or emergency referrals. We conclude that using aspirin and Plavix® simultaneously has no considerable effect on the risk of bleeding in patients having conventional forceps extraction of a single tooth.

Keywords: Aspirin; Clopidogrel; Tooth extraction; Uncontrolled bleeding

Introduction

Percutaneous coronary insertion of stents is used selectively in both stable and unstable patients with coronary heart disease, and increases the risk of thrombosis.[1] The risk of thrombosis and restenosis of a stent can be minimised by follow-up and taking anticoagulant drugs. Antiplatelet drugs, including acetyl salicylic acid (ASA) and clopidogrel sulphate (Plavix®, Sanofi-Aventis, France), are prescribed for patients with a history and risk of myocardial infarction.[2,3] Dual treatment is used routinely for 3-12 months after percutaneous insertion of a stent to reduce the risk of thrombosis.[1] ASA decreases platelet aggregation, while Plavix® inhibits adhesion of fibrinogen to activated platelets.[1,3,4] During the first year after intervention, operations are accompanied by an increased risk of bleeding in patients taking the drugs.[2,4,5] One of the most common interventions is dental extraction,[3,4,6,7] and although there have been many studies there are no clear guidelines, as some studies have

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recommended no intervention during the first six months and some have suggested continuation of treatment with ASA and Plavix®.[6–9]

This study was designed to evaluate immediate and long-term bleeding after forceps extraction of one tooth in patients taking ASA and Plavix® during the first year after percutaneous coronary intervention compared with healthy controls.

Patients and Methods

We prospectively studied 64 patients who had had a percutaneous insertion of a stent (with no limitation in type and brand) during the previous year, who were referred to the Dental Clinic for forceps extraction of one tooth by the same dentist in 2014. Patients taking aspirin 80 mg and Plavix® 75 mg were included in the study, whereas patients taking other drugs at other doses, and patients whose stents had been inserted for more than a year, were excluded. A group of healthy controls (with no history of taking anticoagulants, and who were having a tooth extracted by the same dentist) were used for comparison. Other exclusion criteria were pregnancy and known bleeding disorders.

Clinical and personal data, underlying diseases, time since insertion of the stent, and laboratory findings were recorded for each patient. Type of tooth extracted (anterior or posterior), number of roots, dose of anaesthetic (carpule), type of haemostasis (gauze, suture, and haemostatic gel), immediate haemostasis and haemostasis at 30 minutes were evaluated.

Measurements and definitions

The number of months since starting aspirin and Plavix® was the duration of time that the drugs had been taken, and the number of hours since taking the last dose of aspirin and Plavix® was the duration of time since the last dose had been taken. Diabetes was defined according to the American Diabetes Association diagnostic criteria (ADA-2013), or known cases of diabetes.[10] Systolic blood pressure over140 mmHg or diastolic blood pressure over 90 mmHg, and patients taking regular antihypertensive drugs were considered as hypertensive.[11] Any form of periodontal inflammation, infection, malformations, and other pathological changes that affect bleeding were considered as periodontal diseases.

Patients were asked to bite on a sterile gauze and hold it for 10 minutes, and the end of this time was considered to be baseline. Controlled bleeding at time zero was considered as "immediate complete haemostasis". In case of reduced bleeding, haemostatic methods such as continued packing, haemostatic gel, and sutures were used depending on the amount of bleeding ("immediate partial haemostasis"). Unusual bleeding needs serious intervention and was considered as "uncontrolled bleeding". This was sutured if necessary and the bleeding was controlled with haemostatic gel.

All patients were re-evaluated 30 minutes after the intervention. No sign of bleeding was recorded as "30-minute complete haemostasis". Reduced bleeding or the need to change the method of haemostasis was considered as "30-minute partial haemostasis", and unusual bleeding was considered as "30-minute uncontrolled bleeding".

Patients were discharged after successful haemostasis and all patients were followed-up 48 hours and one week (if sutured, when the sutures were removed) later by direct contact to record the incidence of early and late complications.

Ethical considerations

The study protocol was approved by the Ethics Committee of the University (12 January 2014) and followed the principles of the Declaration of Helsinki. Only patients needing urgent dental extraction were included in the study. All patients signed written informed consent after they had been told about the study. All participants were assured about the confidentiality of their personal information. A contact form, including a direct phone number, was given to all participants so that they could report any complications.

Statistical analysis

The sample size was calculated as 54 patients using Stata 11.0 software (StataCorp LP, College Station, TX), based on power >85% and $\alpha = 0.05$ with risk of prolonged immediate bleeding in patients taking dual antiplatelet treatment compared with the control group (relative risk 177.3, $p < 0.001$).[4]

Data were analysed using IBM SPSS Statistics for Windows (version 21, IBM Corp, Armonk, NY). The significance of the differences between normally distributed variables (confirmed by one-sample Kolmogorov–Smirnov test) was compared using the independent sample *t* test, and between skewed data using the Mann-Whitney U test. The chi square and Fisher's exact tests were used to compare the significance of differences between categorical variables, and one-way analysis of variance (ANOVA) with least significant difference (LSD) and Tukey's post hoc tests was used to comparing subgroups of haemostasis. Probabilities of less than 0.05 were accepted as significant.

Results

We evaluated 64 patients who took ASA and Plavix® and 50 healthy controls, mean (SD) age 56 (7) years (range 43–76), and mean body weight 79 (13) kg. There were no significant differences in age, sex, underlying diseases, and anterior/posterior teeth between the two groups (Table 1). There were also no significant differences between the haemoglobin concentration, packed cell volume, prothrombin time, partial thromboplastin time, and international normalised ratio between the two groups, but the bleeding time was significantly higher in patients taking aspirin and Plavix® compared with healthy controls ($P = 0.003$, Table 2).