Available online at www.sciencedirect.com
SciVerse ScienceDirect
British Journal of Oral and Maxillofacial Surgery xxx (2014) xxx–xxx
BRITISH Journal of Oral and Maxillofacial Surgery
www.bjoms.com

Dental extractions and risk of bleeding in patients taking single and dual antiplatelet treatment

Branislav V. Bajkin [a,*], Ivana M. Urosevic [b], Karmen M. Stankov [b], Bojan B. Petrovic [a], Ivana A. Bajkin [b]

[a] *Dental Clinic of Vojvodina, Faculty of Medicine Novi Sad, University of Novi Sad, Hajduk Veljkova 12, 21000 Novi Sad, Serbia*
[b] *Clinical Center of Vojvodina, Faculty of Medicine Novi Sad, University of Novi Sad, Hajduk Veljkova 1, 21000 Novi Sad, Serbia*

Accepted 11 September 2014

Abstract

Our aim was to evaluate the effects of single and dual antiplatelet treatment on postoperative bleeding in patients having dental extractions. The prospective clinical study included 160 patients who were taking antiplatelet drugs. The first group ($n=43$) were taking 2 drugs, mostly aspirin and clopidogrel, and the second group ($n=117$) were taking a single antiplatelet drug in the form of aspirin ($n=84$), clopidogrel ($n=20$), and ticlopidine ($n=13$). All patients had simple dental extractions, and local haemostasis was with resorbable collagen sponges, without suturing of the wound. The control group comprised 105 healthy subjects with a similar number of dental extractions. Bleeding was an "event" if it continued for more than 12 h, made the patient call or return to the dental practice or emergency department, induced a large haematoma or ecchymosis within the oral soft tissues, or required blood transfusion.

A total of 110 teeth were extracted on 59 occasions in the dual drug group, and 232 teeth on 128 occasions in the single drug group. Bleeding was recorded after extraction in only one patient on dual aspirin–clopidogrel treatment, which was mild and easily controlled by local haemostasis. The incidence of postoperative bleeding did not differ significantly among the three groups ($\chi^2=4.3$, $p=0.11$). However, the wound was sutured to achieve effective initial local haemostasis in 4/59 (6.8%) and 2/128 (1.6%) occasions of tooth extractions in the dual and single drug groups, respectively, and none in the control group ($\chi^2=10.02$, $p=0.007$). Patients taking single or dual antiplatelet drugs may have teeth extracted safely without interruption of treatment using only local haemostatic measures.

Keywords: Aspirin; Thienopyridines; Antiplatelet therapy; Bleeding; Oral surgery; Tooth extraction

Introduction

Antiplatelet agents are widely used in the prevention and management of arterial thrombosis, and the common indications for their long-term use are ischaemic heart disease, previous myocardial infarction, coronary artery bypass and placement of a stent, non-haemorrhagic stroke, transient ischaemic attacks, and peripheral arterial disease.

Low doses of aspirin, clopidogrel, ticlopidine, and dipyridamole are the most common antiplatelet drugs, and they inhibit platelet function by different mechanisms. Aspirin irreversibly inactivates the enzyme cyclo-oxygenase and thereby prevents synthesis of thromboxane A_2, which has an important role in platelet aggregation. Aspirin affects the activity of platelets during their lifetime (7–10 days). Clopidogrel, ticlopidine, and prasugrel (thienopyridines) inhibit adenosine-diphosphate receptors and are also effective during the lifetime of a platelet. Dipyridamole inhibits the reuptake of adenosine and increases cAMP.[1]

* Corresponding author. Tel.: +381 62770665; fax: +381 21526120.
E-mail address: bajkinb@eunet.rs (B.V. Bajkin).

http://dx.doi.org/10.1016/j.bjoms.2014.09.009

Please cite this article in press as: Bajkin BV, et al. Dental extractions and risk of bleeding in patients taking single and dual antiplatelet treatment. *Br J Oral Maxillofac Surg* (2014), http://dx.doi.org/10.1016/j.bjoms.2014.09.009

These drugs are sometimes combined, because they work in different ways. The combination of low-dose aspirin and clopidogrel is mainly used to prevent thrombotic complications after percutaneous insertion of a coronary stent.[2,3]

Despite the benefits of antiplatelet drugs they are not without risk in that they can increase the risk of bleeding, particularly gastrointestinal bleeding, haemorrhagic stroke, and postoperative bleeding. In patients who take combinations of antiplatelet drugs, the risk is higher because of their synergistic effect.[2]

Because of the fear of excessive bleeding, physicians often recommend discontinuation of antiplatelet drugs several days before oral operations,[4,5] but this can expose patients to the risk of thromboembolism.[6–9] Several studies have shown that there is no need to discontinue aspirin before dentoalveolar surgery.[10–17] Nevertheless, there is a lack of published evidence about perioperative dental management of the patients on dual and non-aspirin antiplatelet drugs.[4,5,13,18]

Our aim was to evaluate the effect of single and dual antiplatelet drugs on postoperative bleeding in patients who had teeth extracted.

Patients and methods

The prospective clinical study took place from September 2010 to December 2013. All patients provided written informed consent, and the study was approved by the local Ethics Committee.

The dual group comprised 43 patients who were taking two antiplatelet drugs (asprin + clopidogrel, aspirin + ticlopidine and aspirin + prasugrel) and the single group 117 who were taking aspirin, clopidogrel, or ticlopidine alone. All participants were told to continue to take their antiplatelet drugs regularly. The control group comprised 105 healthy patients who were not taking any drugs.

All patients required a simple extraction of one or more teeth under local anaesthesia with no need for a mucoperiosteal flap. Patients with liver disease, alcoholism, those taking anticoagulant therapy or non-steroidal anti-inflammatory drugs that could interact with aspirin, those who had had a serious haemorrhage after dental extractions before starting the antiplatelet drugs, those who discontinued their drugs for whatever reason, and minors, were excluded from the study.

All dental extractions were done in the outpatient clinic by one surgeon with minimal trauma. The local anaesthesia was achieved using 2% lignocaine with 1/80 000 adrenaline. The same local haemostatic measures were used for all patients. Extraction sockets were packed with a collagen sponge without primary suture of the wound. Afterwards patients were asked to hold the sterile gauze in a firm bite for 30 min. The patients were then observed for 2 h. If there was any bleeding after extraction a gauze pressure pad was applied to the wound for 10 min. This was repeated, if needed, twice, after which the wound was sutured with a non-resorbable 3/0 black silk suture.

Table 1
Indications for antiplatelet medication.

Indication	Dual antiplatelet treatment ($n = 43$)	Single antiplatelet treatment ($n = 117$)
Coronary artery stents	28	14
After myocardial infarction	7	21
After coronary artery bypass	3	25
Angina pectoris	3	30
Ischaemic heart disease and thrombophlebitis	1	0
Ischaemic heart disease and cerebrovascular disease	1	5
Ischaemic cerebrovascular disease	0	10
After peripheral vascular surgery	0	4
Thrombophlebitis	0	4
Valvar heart disease	0	1
Thrombophilia	0	1
Primary prevention	0	2

All patients were given a list of postoperative instructions and the telephone number of a surgeon who could be contacted in case of postoperative bleeding. Paracetamol was recommended for relief of pain. All participants were examined after 30 min and 2 h, and then on the first, second, and fifth days later. Patients who were unable to come for a regular check-up were contacted by telephone to find out if they had had any bleeding. They were also instructed to call the surgeon if any bleeding occurred. Any sutures were removed on the fifth day. Bleeding was identified as an "event" using criteria recommended by Lockhart et al.[19] if it continued for more than 12 h; was enough to make the patient call or return to the dental practice or emergency department; resulted in the development of a large haematoma or ecchymosis within the oral soft tissues; or required a blood transfusion. We recorded all the cases where the wound required a suture for successful local haemostasis before discharge (two hours after the procedure), but we did not consider it a bleeding event.

We used the χ^2 test to evaluate the significance of differences in postoperative bleeding between the groups. The significance of differences between parametric variables was assessed using the analysis of variance. Probabilities of less than 0.05 were accepted as significant.

Results

We initially studied 192 patients who were taking antiplatelet drugs. Nineteen patients who discontinued their antiplatelet dugs several days previously, for whatever reason, were excluded from the study. Thirteen patients who required a more complex extraction were also excluded. A total of 160 patients therefore met the study inclusion criteria 43 in the dual group and 117 in the single group. The indications for treatment are shown in Table 1. The control group consisted of 105 healthy subjects.

Please cite this article in press as: Bajkin BV, et al. Dental extractions and risk of bleeding in patients taking single and dual antiplatelet treatment. *Br J Oral Maxillofac Surg* (2014), http://dx.doi.org/10.1016/j.bjoms.2014.09.009