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Is interruption of antiplatelet drugs prior to extraction mandatory? - A case study

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Abstract

It is a common precaution to stop antiplatelet drugs prior to the extraction procedures. In the present study we have analyzed the post extraction bleeding of those patients who were under single antiplatelet medication (Group 1: Aspirin, Group 2: Clopidogrel) with that of control group (Group 3) in our institute. All the patients were given a brief description of the procedure and a medical fitness from those taking antiplatelet were taken from the consulting physician before the procedure. All the measures to control the post-extraction bleeding were assembled before the procedure. All patients who received antiplatelet were carefully examined to assess the post extraction bleeding and were compared with that of control group.

Keywords: Anti platelet, extraction, interruption, mandatory

Introduction

Many patients undergoing dental extraction are having underlying cardiovascular and cerebrovascular diseases are the common cause of mortality and morbidity across world[1]. Antiplatelet drugs are used in the treatment and prevention of these diseases - it reduces blood clotting and prevents serious thromboembolic complications. Many studies have proved that a low dose aspirin has increased the bleeding tendency[2].The standard practice in the early days was to interrupt the use of antiplatelet therapy for 3 to 7 days before tooth extraction to reduce the post extraction bleeding[3]. In our institution we usually take a medical fitness from the concerned physician and alter the antiplatelet medication as directed by the physician. But recent studies say that interruption of anti-platelet drug is not mandatory for dental procedures.

Methodology

Inclusion criteria

Patients undergoing ecospirin 75 mg or clopidogrel 75mg monotherapy once daily for more than 6 months who reported to our out-patient department for extraction (single or multiple)

Control group should be comparable with that of study group in all aspects except for the antiplatelet therapy

Exclusion criteria

Patients with systemic hypertension greater than 160/90 mm Hg

Patients with associated co morbidities like liver diseases, kidney disorders, and diabetes mellitus

Patients with combination of antiplatelet drugs

Patients with more than 4 single rooted teeth, 2 multi-rooted teeth per visit

Patients who need surgical extraction

Patients who didn't get fitness from consulting physician

Patients with platelet dysfunction, low HB level, Thrombocytopenia and other bleeding and clotting disorders

Study population and study group

Total sample size of 90. The sample size was equally divided in to 3 groups

Group 1: Patients on Ecospirin therapy 75mg once daily

Group 2: Patients on Clopidogrel therapy 75mg once daily

Group 3: Control group

Parameters assessed

The group 1 and group 2 patients were assessed based on following parameters and were compared with that of control group.

1. Post extraction bleeding was examined after 30 minutes of compression packing
2. Episodes of reactionary or secondary bleeding after going home
3. Any bleeding episodes which required revisit

Method

Before the procedure the degree of trauma attributed to the extraction was approximately estimated. As the post extraction bleeding increases with degree of trauma and taking consideration of attributable risk to the patient without changing or interrupting antiplatelet therapy, it was decided to extract no more than 4 single rooted teeth, 2 multi-rooted teeth. Consulting physician advised antibiotic prophylaxis to 13 patients. For them, amoxicillin 2.0 g one hour preoperatively was given in accordance with recommendations of the American Heart Association. All the patients were treated by the same doctor. For all the patient's extraction was performed with 2% lignocaine with 1:200000 adrenaline with minimal trauma. Hemostasis was achieved with pressure packing and all extraction sockets were sutured with 3-0 braided silk. Patients were monitored for half an hour after compression packing for control and detection of immediate bleeding (if any). Patients were advised to revisit if any episodes of reactionary or secondary bleeding occur after going home.

Results

Total of 60 patients were examined with 30 control patients. All the patients of both the group (group 1 and 2) required no additional local haemostatic measure other than compression packing. One patient reported of group 2 back to our casualty department on the very same day after extraction. Complete blood investigation was done for him and all those investigations were within normal level. The bleeding was attributed to continuous spitting in the post extraction phase. We were able to manage the bleeding by a compression pack socked with botroclot. Two among Group 1 and one among group 2 and Group 3 revisited after 4 days complaints of pain in the extraction socket. On examination all those patients developed dry socket which was not a parameter included in the study. All those patients were given proper supportive management.

Table 1

Characteristics	Group 1	Group 2	Group 3
Total number of patients	30	30	30

Sex	Male: 13 Female: 17	Male: 18 Female: 12	Male: 15 Female: 15
Age	50-60yrs: 10 60-70yrs: 20	50-60yrs: 14 60-70yrs: 16	50-60yrs: 11 60-70yrs: 19
No of patients who required additional haemostatic measures after 30 minutes	-	-	-
No of patients revisited within 24 hours	-	1**	-
No of patients revisited after 3 days	2*	1*	1*

*: Not a parameter assessed during study

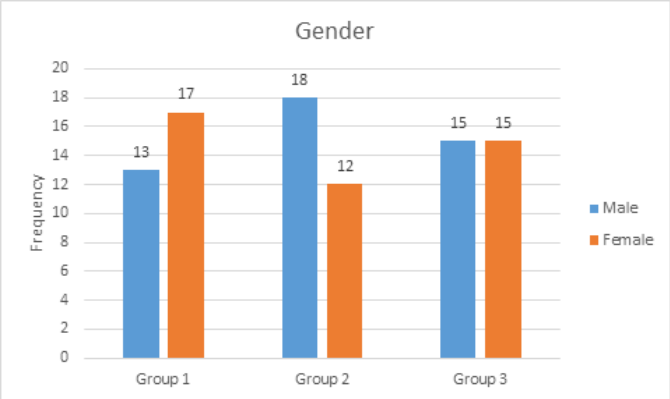
**: Post - operative bleeding occurred because of the lack of cooperation of the patient

Table 2

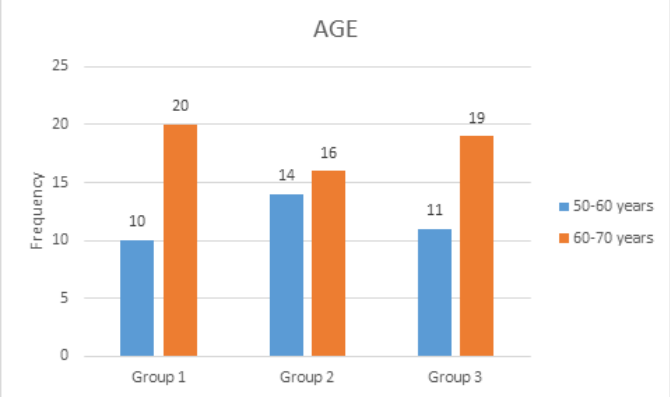
Characteristics	Group 1	Group 2	Group 3	P value
Patients who required additional haemostatic measures after 30 minutes				-
Yes	0	0	0	
No	30	30	30	
Patients revisited within 24 hours				0.364
Yes	0	1	0	
No	30	29	30	
Patients revisited after 3 days				0.770
Yes	2	1	1	
No	28	29	29	

Chi square test was used for comparison between groups and different characteristics. No statistically significant difference was found (p>0.05).

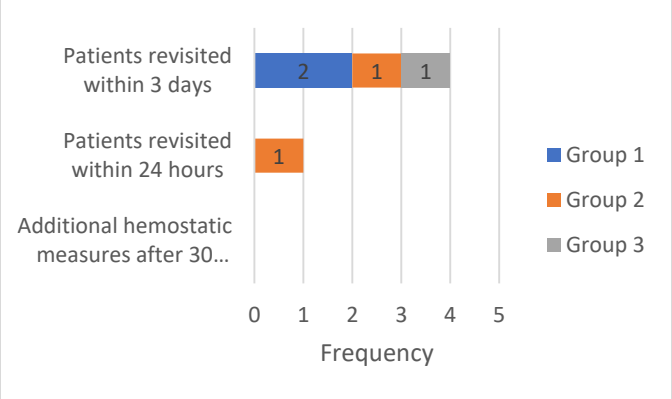
Graph 1



Graph 2



Graph 3



Discussion

The prophylactic role of aspirin and other antiplatelet drugs has been confirmed based on a meta-analysis of 287 studies which involve a total of 135,000 patients[4]. Various evidence-based studies recommended aspirin in the range of 75–100 mg/day for the prophylaxis against serious vascular events in high risk patients[5]. The commonly recommended doses of aspirin for prevention

of myocardial infarction and stroke are 81, 160, and 325 mg/day in the United States, whereas, in Europe and other countries, doses of 75, 150, and 300 mg/day are recommended[6].

Risk of Continuing Aspirin therapy prior to Surgery

Since platelets activity is affected, there will be alteration in the primary hemostasis mediated by platelet plug formation. Thus it takes longer time period for arresting bleeding from a cut surface[7]. According to the study by Burger et al. in those patients on aspirin, the average risk of intraoperative bleeding increases by a factor of 1.5[8].

Timing for stopping antiplatelet therapy

The effect of aspirin starts within 1 hour of ingestion and lasts for 7–10 days, that is, life span of a platelet. Therefore, traditionally it was recommended to stop aspirin therapy 7–10 days prior to surgical procedure. But the actual time frame for discontinuing antiplatelet therapy is still debatable. According to Daniel et al[9]. and Sonis et al.[10], antiplatelet therapy should be stopped 7 days preoperatively to minimize the risk of bleeding during surgery. Sonis et al. further stated that only the production of newer platelets will be able to overcome the inhibiting effect of aspirin. Therefore, stopping aspirin only for few days does not reverse the aspirin inhibition. According to the recommendation of Wahl[11] aspirin should be discontinued for 3 days only. The rationale for such recommendation is that, after 3 days of interruption of aspirin, sufficient number of newer platelets (which are not affected by aspirin) will be present in the circulation for effective hemostasis.

Literature regarding safety of continued aspirin therapy prior to tooth extraction

CA nigral et al[12]. conducted a study involving simple and surgical extractions in patients on aspirin, clopidogrel, aspirin + clopidogrel, nonsteroidal anti-inflammatory drugs (NSAIDs) and low molecular weight heparin (LMWH). According to their study in 92% of instances, bleeding was stopped within 10 minutes with pressure alone. There were only 8% of cases of moderate hemorrhage, which were easily managed by local haemostatic measures. Nielsen et al[13]. stated that minor dentoalveolar surgical procedures can be carried out safely without interrupting antithrombotic therapy if INR is within therapeutic range. Although aspirin and clopidogrel may increase the bleeding risk, the risk of fatal outcome is generally higher if treatment is stopped. They recommended use of local haemostatic measures and tranexamic acid mouthwash to control bleeding. Allard et al[14]. stated that the review of available literature is in favour of not stopping aspirin or clopidogrel in case of simple dental surgical procedures. According to Lillis et al. patients on dual antiplatelet therapy showed prolonged immediate bleeding when compared to those on single antiplatelet therapy[15].

Decision to stop antiplatelet therapy: based on weighing risks vs benefits

Decision to continue or stop the antiplatelet therapy is like weighing risk of thromboembolic event against risk of bleeding. Before decision making, some factors need consideration. These factors are patient's inherent risk factors for bleeding, additional ongoing treatment which increases the bleeding risk, invasive potential of the surgical procedure, and potential risk of thromboembolic event if antiplatelet therapy is stopped[16]. In addition to these, previous history of bleeding episode, haemorrhagic peptic ulcers, or haemorrhagic stroke increases possibility of bleeding. Patient's inherent factors which can increase the risk of bleeding must be identified prior to invasive surgical procedure. Patient's demographic risk factors include advanced age and female sex. Additional patient related risk factors

include obesity, hypertension, diabetes mellitus, haemostatic disorders, renal impairment or failure, and other major organ system failures.

Conclusion

From our study we have concluded that

1. In patients on monotherapy with Ecospirin 75 mg or Clopidogrel 75 mg a day, single or multiple teeth extraction can be performed without risk of uncontrolled bleeding, provided that additional bleeding causing factors are excluded.

2. No statistically significant difference in post-extraction bleeding between patients taking ASA or clopidogrel and those in control group was found.

3. Local hemostasis compression packing and sutures was sufficient for controlling of post-extraction bleeding in patients on monotherapy with Ecospirin or Clopidogrel.

However, the surgical procedures performed on the patients must be based on sound scientific knowledge of literature. Nothing is static, so is the science. Recommendation changes from time to time. Based on the review of literature, it can be concluded that current recommendations and consensus are in favour of not stopping antiplatelet dose of aspirin prior to tooth extraction. The safety of dental extractions in such patients is supported by studies reported in literature. It must be emphasized that appropriate use of local haemostatic measures should always be considered whenever indicated. There is no justification to predispose the patient to the risk of thromboembolism at the expense of minor bleeding which can be easily controlled.

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