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Acetylsalicylic Acid and Oral Surgical Procedure

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Abstract
Introduction: *Acetylsalicylic acid (ASA) therapy, an antithrombotic agents used in various medical conditions, was frequently discontinued before undertaking any oral surgical procedure. However recent researches advise against it..*
Materials and Methodology: *A study was carried out to review all the patients' charts retrospectively. The sample size consisted of 122 patients who were taking low dose ASA 75 to 150 mg. Those patients on high dose of ASA, dual antiplatelet therapy and on oral anticoagulant therapy were excluded from the study. The Bleeding time and International Normalized ratio was obtained for the entire sample size.*
Results: *The mean bleeding time was 3.144 and INR was 0.845. The range lies within the acceptable range. Out of 122 patients, only 4 patients reported with a complaint of post operative bleeding. The bleeding episodes were managed by simple haemostatic measures such as gauze pressure and suturing.*
Conclusion: *The fear of uncontrolled postoperative bleeding need not worry a clinician in patients taking low dose 75 to 150 mg ASA. The oral surgical procedures with minimal anticipated bleeding can safely be carried out.*
Keywords: *Acetylsalicylic acid, Oral Surgical Procedure, Post operative Bleeding.*

Introduction

Acetylsalicylic acid (ASA) is used as an antipyretic, anti-inflammatory and antiplatelet activities. The antiplatelet activity of low dose aspirin can prevent arterial thrombosis in both high risk patients with known occlusive vascular disease and in low risk patients. Platelet function and COX-1 enzyme are irreversibly inhibited by aspirin through a selective acetylation of human COX-1 lasting for up to 10 days[1]. Therefore it is not uncommon for physicians and dentists to routinely stop patients' antiplatelet therapy for 7 to 10 days or for at least 3 days, prior to dental extraction[2-7]. However considerable debate has been generated with regard to balancing the risk of a postsurgical hemorrhage with that of precipitating a thromboembolic event. Stopping or altering antiplatelet therapy may expose such patients to the risk of thromboembolism, myocardial infarction, or cerebrovascular accidents exodontia and antiplatelet therapy[2]. The perioperative bleeding has been shown not to differ significantly between patients who continue antiplatelet therapy and those who stop it of their own accord. The sufficient hemostasis can be obtained using local measures[8]. Use of low-dose aspirin in patients who have cardiovascular disease is estimated to prevent at least 10 to 20 fatal and nonfatal vascular events per every 1000 patients taking the drug for 1 year who are at high risk (annual 4%-8% risk) of serious vascular events. Further, it is estimated that regular aspirin prophylaxis reduces the risk of nonfatal myocardial infarction by 30%, nonfatal ischemic stroke by 30%, and vascular death by about 17% in patients who are at high risk for atherosclerotic disease. Evidence suggests that daily doses of aspirin in the range of 75 to 100 mg (1 baby aspirin contains 81 mg) are optimal for the long-term prevention of serious vascular events in high-

risk patients however, long-term therapy with low-dose aspirin is not without risks. It doubles the risk of gastrointestinal bleeding and results in 1 to 2 hemorrhagic strokes per 10, 0000 patients[1]. The objective of the study is to evaluate post operative bleeding complications when low dose of ASA therapy is not altered prior to simple oral surgical procedures.

Materials and methods

The retrospective data chart of the patients was analyzed from May 1, 015 to April 30, 016. The period one year is taken to avoid any probable seasonal bias. There is ample of evidences in the literature suggesting continuation of ASA therapy when extraction is to be performed. However in a developing country, where national guidelines are still to be published it is a dilemma for a clinician whether to follow the recent guidelines or continue with the older guidelines. In our department we follow a protocol in which we do not stop low dose ASA (75 to 150 mg) for patients needing extraction of teeth or other simple procedures where less bleeding is anticipated. But all the patients on ASA therapy will be evaluated for Bleeding time, Prothrombin time and International Normalized ratio (INR). However for dual antiplatelet therapy and oral anticoagulant therapy physician's advice was sought. The sample size was all those patients who were taking low dose ASA therapy and had to undergo oral surgical procedure without any co morbid hepatic dysfunction. The patients who were taking dual antiplatelet therapy and anticoagulants would be excluded from the study. The study group consisted of 122 patients. All the charts of the patients was reviewed retrospectively to determine any post operative complications The post operative bleeding complications was evaluated by analyzing the patient data information maintained in the Department of Oral and Maxillofacial Surgery and the Emergency Department. The data was coded and entered in SPSS version 21and analyzed using descriptive statistics.

Results

The acetylsalicylic acid was indicated for various different ailments in patients (Table 1).The total number of patients enrolled in the study was 122. The mean age of the patient was 56. The 116 patient underwent extraction on 150 occasions. Two patients underwent biopsy and four patients underwent simple alveoplasty. Only four out of 122 patients reported bleeding problems. The mean and standard error of both these variables bleeding time and INR testing were calculated who underwent oral surgical procedure. The two patients who came with post operative bleeding had undergone surgical extraction for the breakage of root. The other two patients was simple extraction with 2 extractions of teeth in one session. The mean bleeding time was 3.144 with standard error 0.505. This means that the bleeding time for all of them lies between 2.154 (3.144-1.96*0.505) and 4.134 (3.144+1.96*0.505) with 95% confidence. Thus the bleeding time for patients taking ASA falls within the acceptable range of 2-8mm. The mean for INR testing was 0.874 with standard error 0.128. The range lies between 0.623 (0.874-1.96*0.128) and 1.125 (0.874+1.96*0.128). This is also well within the acceptable range of 0.6-1.2 mm.

Table 1: Medical conditions for which ASA therapy been instituted

Indications	**No. of Patients (n)**
Hypertension	**24**
Coronary artery disease	**17**
After myocardial Infarction	**13**
Cerebrovascular accident	**15**
Cardiac stent placement	**3**
Polycythemia Vera	**1**
Diabetes	**23**
Hypertension and diabetes both	**26**

Discussion

Antiplatelet agents are widely used for the prevention and treatment of various ischemic cardiovascular and cerebrovascular conditions. The Antithrombotic Trialists' Collaboration confirmed in a meta analysis that antiplatelet

drugs had protective effective in acute myocardial infarction or ischaemic stroke, both stable and unstable angina, previous myocardial infarction, stroke or cerebral ischemia, peripheral arterial disease, and atrial fibrillation. Those studies confirmed that antiplatelet agents had substantial benefit in the secondary prevention of occlusive vascular events, but for primary prevention their use should be weighed against the risk of bleeding[9]. In our study, the maximum number of patients had co morbid conditions like hypertension and diabetes both for which they were under medication. Only 1 patient who was diagnosed with Polycythemia vera was taking low dose ASA.

The bleeding time and INR is within the normal range in almost all of our patients. Krishnan et al. reported no differences between ASA and control groups in clotting time, using the slide method. Brennan et al. measured whole-blood platelet aggregation and found significant differences between the ASA and control groups. Park et al. reported platelet counts to be significantly lower in patients on antiplatelet therapy than in healthy control subjects, with mean values of 126 (SD 42) _ 103/_L and 235 (SD 56) _ 103/_L, respectively (*P* _ .001).12[10].

Postoperative hemorrhage was defined as oozing that could be stopped through compression by biting down on gauze or oozing or marked hemorrhage that could not be stopped by biting down on gauze and required haemostatic measures by an oral surgeon (compression, hematoma removal, oxidized cellulose insertion, resuturing and electrocautery, and/or splint placement). The high end of the therapeutic range of INR is 3.5. Therefore, patients with INR above the therapeutic range are at increased risk of prolonged bleeding. For this reason, patients with INR greater than 3.5 should be referred to their physician for dose adjustment before invasive dental procedures .Expert opinion suggests that INR values should be obtained within 24 hours before the dental procedure. Portable INR monitors are now available that can measure INR from a finger-stick sample of whole blood and provide results within seconds. Such devices may be useful in cases when INR values are known to fluctuate significantly[11].

Our study demonstrated that dental extractions, even the more complex procedures, did not result in uncontrolled postoperative hemorrhage in patients receiving low-dose aspirin therapy. No radical steps were needed to stop the bleeding in these patients, and in most cases suturing was the only haemostatic tool used. Thus, it seems that there is no need to stop low-dose ASA therapy in most patients, perhaps even in patients with anemia.

Our study has limitations such as it was focused on low dose i.e. 75 – 100 mg ASA therapy only. The high dose of ASA, dual antiplatelet therapy and on oral anticoagulant therapy was excluded from the study. We did not include control group of healthy patients in our study because of recommendations in the literature. A prospective trial could be conducted with all those groups and variables statistically calculated for the significance.

Conclusion

The study shows that low dose ASA therapy (75-150 mg) need not be stopped prior to simple oral surgical procedures. The post operative bleeding can be effectively managed by simple hemostatic procedures.

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