



## CLINICAL EVALUATION OF ROLE OF ANTIPLATELET THERAPY ON BLEEDING AFTER DENTAL EXTRACTION.

### Maxillofacial Surgery

**Dr. Aniket Sarkar\*** 3<sup>rd</sup> year PGT, Dept. of Oral and Maxillofacial Surgery Guru Nanak Institute of Dental Sciences & Research, Panihati, Kolkata. \*Corresponding Author

**Dr. Sumit De** Oral and Maxillofacial Surgeon.

**Dr. Lahari Banerjee** 3<sup>rd</sup> year PGT, Dept. of Oral and Maxillofacial Surgery Guru Nanak Institute of Dental Sciences & Research, Panihati, Kolkata.

**Dr. Samiran Ghosh** Professor, Dept. of Oral and Maxillofacial Surgery Guru Nanak Institute of Dental Sciences & Research, Panihati, Kolkata.

### ABSTRACT

Planning for dental extraction for patients under antiplatelet therapy remains controversial. Still now there is no such agreed protocol regarding the modification of antiplatelet treatment in different doses for patients requiring dental extraction.

### KEYWORDS

Dual antiplatelet therapy, Single antiplatelet therapy, Bleeding, Dental extraction.

### INTRODUCTION

Age is a contributing factor for incidence of cerebrovascular and cardiovascular diseases.<sup>1</sup> These patients remain on antiplatelet therapy and they may have an increased risk of bleeding following dental extraction of about 17.4%.<sup>2</sup>

Patients on coronary artery diseases remain on dual antiplatelet therapy which comprises of acetylsalicylic acid (Aspirin) and a P2Y12 inhibitor (Clopidogrel, ticlopidine, ticagrelor or prasugrel). As these drugs inhibit the platelet function by different mechanisms, the bleeding risk becomes an area of concern for oral and maxillofacial surgeons and the patients undergoing minor oral surgical procedures.<sup>1</sup>

The purpose of this study was to address the following question: Among patients with different antiplatelet therapy, can dental extractions be carried out safely? As there is a scarcity of data in the literature regarding different treatment planning modifications in dental extraction on patients having single or dual antiplatelet therapy in different doses.

### Study Design

In our prospective randomized controlled single centre study, we have 80 patients who have undergone dental extraction. Patients were divided into four groups where Group A consists of 20 healthy patients without any history of systemic diseases and not consuming any regular medications, Group B included 20 patients who were taking aspirin 75-150mg for more than 3 months, Group C included 20 patients who were taking only clopidogrel 75mg for more than 3 months and Group D included 20 patients who were taking both aspirin 75mg and clopidogrel 75mg for more than 3 months.

All the extractions were done in mandible to negate the local haemostatic action due to infiltration of local anaesthesia. Multiple teeth extractions were done up to 3 units, where one unit is corresponding to one root (Anterior and premolars taken as 1 unit and lower molar corresponding to 2 units). We evaluated the intraoperative bleeding by placing two pre-weighted autoclaved surgical gauze bilaterally and then after the extraction of the tooth the weight of the gauze placed on the extraction site was subtracted from the weight of the gauze from the non-extraction site (Contralateral side) by doing this we achieved a more precise weight of blood loss, excluding saliva. The calculated difference in weight between the pre-weighted autoclaved surgical gauzes intra-operatively was converted directly to a volume measurement of blood loss. The difference in weight in gms between the working and non-working side can be equated as 1gm. Equivalent to 1ml. of blood.

Evaluation of immediate post-operative bleeding was done with the help of two pre-weighted autoclaved surgical gauzes, placed both buccally and lingually bilaterally up to 2 hours following the extraction, at every 30 mins interval.

The state of late postoperative haemostasis was confirmed by clinical

evaluation on recalling the patients in post-operative follow-up.

### Statistical Analysis

Statistical Analysis was performed with help of Epi Info(TM) 3.5.3. EPI INFO is a trademark of the Centers for Disease Control and Prevention (CDC).

### RESULT

In our study age distribution was matched for the patients between the four groups for their ages.

Corrected Chi-square test showed that there was no significant association between gender and patients of the four groups. Thus, the patients of the four groups were matched for their gender.

In mean bleeding time and platelet count (lakh/mm<sup>3</sup>) of the patients of the four groups one way ANOVA showed no significant difference.

In per-operative mean total blood loss of the patients of the four groups where one way ANOVA showed there was no significant difference. (P value-0.06)

In the post-operative phase one way ANOVA showed there was no significant difference in mean total blood loss after 30 mins of the patients of the four groups. (P value-0.08) (TABLE 1)

Intergroup pair wise comparison of the mean total blood loss within 30 mins to 1 hour (P value-0.28) (TABLE 2), 1 hour to 1 hour 30mins (P value-0.60) (TABLE 3) and 1 hour 30 mins to 2 hours (P value-0.40) (TABLE 4) also showed no significant difference by one way ANOVA of the patients of the four groups.

No history of late postoperative bleeding was found in patients of the four groups after 24 hours.

### DISCUSSION

The age of the study population was in the range of 18-82 years. According to Kasjanovova and Balaz noted that no age-related differences were found in the haematological and coagulation parameters tested.<sup>3</sup> Cañigral et al observed that, the tendency of older patients to show an increased risk of moderate bleeding which was continued more than 10 minutes but less than 60 minutes.<sup>4</sup> As the distribution of age is matched across the four groups in our study, so age is probably not an influencing factor for per-operative and post-operative sequel in this study.

Dolan et al observed that plasma antithrombin levels increase slightly in women and decrease slightly in men with age.<sup>5</sup>

As the distribution of gender is matched across the four groups in our study, so gender is possibly not an influencing factor for per-operative and post-operative bleeding in the present study.

In our study the statistical analysis showed no significant difference in mean bleeding time and platelet count (lakh/mm<sup>3</sup>). Several other studies supported our findings.<sup>6,7,8</sup>

In terms of per-operative bleeding a study by Madan et al. and Krishnan et al. stated that patients on single antiplatelet therapy didn't show any significant difference of prolonged or significant bleeding from extraction sites from that with patients not on any antiplatelet therapy.<sup>6,7</sup> Another study by Partridge et al. explaining the effect of platelet-altering medications on bleeding from minor oral surgery procedures described that, there were no statistically significant differences in per-operative blood lost between the control group and experimental group.<sup>9</sup> The study performed by, Carrasco et al to assess the frequency of haemorrhagic complications of patients taking dual antiplatelet medication undergoing dental extractions said that, during the course of extraction, in patients treated with dual antiplatelet therapy, dental extractions cause 8.3% of haemorrhagic complications >30 minutes in duration.<sup>10</sup>

In our study the statistical analysis showed no significant difference in mean per-operative total blood loss of the patients in four groups.

In terms of postoperative bleeding the studies performed by Madan et al., Partridge et al., Krishnan et al., F Buhatem et al., Lillis et al., and Napan'as JJ et al. stated that there was no significant difference in immediate postoperative bleeding with patients on antiplatelet therapy in comparison with patients not on antiplatelet therapy.<sup>6,7,8,9,11,12</sup> The meta-analysis by Ockerman et al. stated that a significantly higher postoperative bleeding risk for dual antiplatelet therapy compared to single antiplatelet therapy and no antiplatelet therapy, although the risk difference was only 1% higher compared to single antiplatelet therapy and 1% compared to no antiplatelet therapy.<sup>1</sup>

In our study also the statistical analysis showed no significant difference in mean immediate post-operative total blood loss of the patients in four groups.

No history of postoperative bleeding was also found after 24 hours in our study of the patients in four groups. This finding was supported by several other studies.<sup>7,8,9,10</sup>

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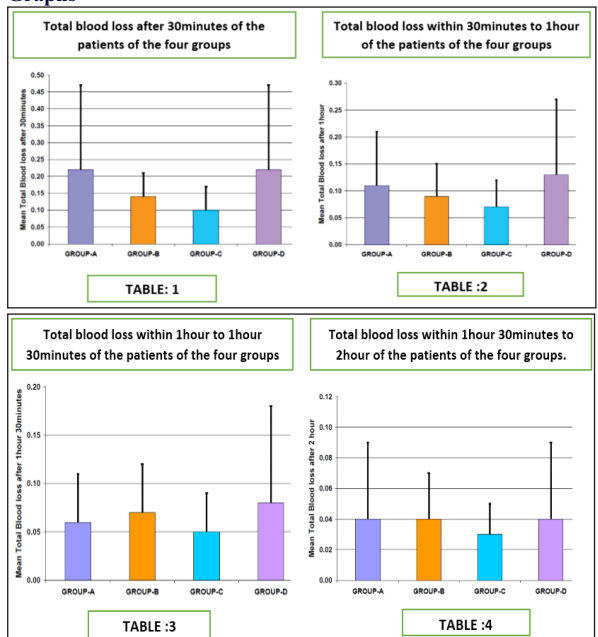
**Limitations Of Our Study**

Less number of sample size and non-inclusion of maxillary teeth are the main limitations of our study.

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**Graphs**



**CONCLUSION**

From the above findings, we conclude that patients who take only aspirin 75-150 mg or clopidogrel 75mg or both aspirin 75mg and clopidogrel 75mg for more than 3 months can safely undergo tooth extraction without any alteration of their regular therapeutic antiplatelet regimens and without the additional medical intervention. In intra alveolar extraction up to 3 single rooted teeth, 1 single rooted and 1 multi rooted teeth could be done without any modification of treatment planning and the surgical procedure have to be done