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„Preoperative Aspirin Discontinuation Management and Bleeding Outcome in Elective Coronary Artery Surgery“

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We read with great interest the recently published study by Al-Lawati et al[1]. The purpose of the study was to assess if continuation of aspirin influences bleeding complications following coronary artery bypass grafting (CABG). With respect to preoperative aspirin administration, patients were divided in two groups: Group 1 with late aspirin discontinuation within 7 days before CABG, and Group 2 with early discontinuation determined as aspirin withdrawal in more than 7 days before CABG[1]. The group 1 had significantly higher extent of postprotamine blood loss (p=0.034) , chest tube output (p=0.001) and consumed more blood products than the group 2 (p=0.01) [1]. Preoperatively, patients were randomly allocated into either group at the outpatient clinic, thus making study interventional rather than observational in nature.

Strategies to prevent bleeding and transfusion outcomes are essential for the successful management of patients, however require comprehensive approach. The lack of objective quantification of platelet function constitutes a major drawback of the study. Expected inhibition of platelet function is not always achieved after aspirin administration. Therefore, the role of aspirin in group of patients receiving aspirin preoperatively should be evaluated in context of possible aspirin resistance. In our recent study[2], we analyzed the proportion of patients with aspirin resistance, both pre- and postoperatively[2]. Considering all CABG patients, we observed 31/99 (31.3%) patients with aspirin resistance preoperatively[2]. Postoperatively, we registered 46/99 (46.5%) CABG patients with aspirin resistance, suggesting platelet hyperactivity[2]. Noteworthy, we analyzed the presence of aspirin resistance with respect to the presence of diabetes as a comorbidity[2]. Postoperative evaluation of platelet function revealed 24/41 (58.5%) patients with aspirin resistance in the diabetic subgroup versus 22/58 (38%) in the non-diabetic subgroup, and the difference in proportion was found to be significant (p=0.04)[2]. Those findings

could be of great interest to the authors since they reported very high prevalence of diabetcs within study cohort[1], in whom aspirin discontinuation prior to surgery might expose them to adverse ischemic events. The role of preoperative aspirin administration management should be evaluated in context of both bleeding and ischemic events. One limitation of the present study by Al-Lawati[1] was the lack of data on preoperative adverse events comparison between groups [1]. It would be very valuable to compare MACE outcome between two groups in preoperative phase.

On the other hand, there is evidence that certain patients have an accentuated response to the usual doses of preoperative aspirin that may result in increased perioperative blood loss [3] despite intraoperative administration of antifibrinolytics. At our department we regularly administer a dose of 1 g tranexamic acid (TA) at the induction of anesthesia and after protamine administration [3]. In our experience, although useful, TA *per se* is insufficient to optimize bleeding and transfusion outcomes[3] since we observed excessive bleeding in our cohort which was found to correlate with weak platelet function [3]. The use of point-of-care suitable platelet function analyzers seem to be reasonable in this field. By platelet function assessment, it is possible to distinguish patients with residual platelet reactivity following aspirin administration, thus proclivity to ischemic events, from group with accentuated response to aspirin, therefore, proclivity to excessive bleeding. For patients undergoing CABG, individually tailored aspirin administration management based on platelet function test results, pre- and postoperatively, can reduce both bleeding and ischemic events.

We congratulate the authors on their elegant and timely research.

REFERENCES:

1. Al-Lawati AA, Muthuswamy V. Continuing Aspirin Causes Higher Drainage Even under Full Protection with Antifibrinolytics. Thorac Cardiovasc Surg 2013 ; doi: 10.1055/s-0032-1328927

2. Petricevic M, Biocina B, Konosic S, Kopjar T, Kunac N, Gasparovic H. Assessment of platelet function by whole blood impedance aggregometry in coronary artery bypass grafting patients on acetylsalicylic acid treatment may prompt a switch to dual antiplatelet therapy. Heart Vessels. 2013; 28(1): 57-65.

3. Petricevic M, Biocina B, Milicic D, Konosic S, Ivancan V, Milosevic M, et al. Bleeding risk assessment using multiple electrode aggregometry in patients following coronary artery bypass surgery. J Thromb Thrombolysis. 2013; 35(1): 31-40.