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**„Modern antiplatelet management of coronary artery bypass patients : a role of platelet function testing in decision making“**

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We read with great interest the recently published study by Williams et al [1]. The authors sought to determine the relationship between postoperative clopidogrel and clinical and angiographic outcomes following coronary artery bypass grafting (CABG)[1]. Although clopidogrel is now recommended as postoperative antiplatelet therapy in patients with recent acute coronary syndromes, some other circumstances such as off-pump CABG, performed endarterectomy, and extensive severe coronary artery disease with small target vessels, warrant the use of both clopidogrel and aspirin following surgical revascularization [2]. In present study by Williams et al[1], postoperative antiplatelet therapy was left to physician discretion, thus creating patient selection bias since above mentioned circumstances requiring dual antiplatelet therapy (dAPT) could influence angiographic as well as clinical outcomes.

Aortocoronary vein graft disease is composed of three distinct but interrelated pathological processes: thrombosis, intimal hyperplasia, and atherosclerosis[3]. Early thrombosis is a major cause of vein graft attrition during the first month after CABG[3]. Since the present study assessed clinical outcome [1] it would be interesting if authors included in analysis patients who died prior to 30 days postoperatively. It would be interesting to elucidate how many patients of those who died prior to 30 days postoperatively were on dAPT *vs*. mono antiplatelet therapy early after CABG?

In our opinion, the lack of data concerning objective quantification of the antiplatelet effect of aspirin and clopidogrel constitutes a major drawback of the study. Expected inhibition of platelet function is not always achieved after aspirin and/or clopidogrel administration. The frequency of low responsiveness for the 2 drugs has been reported to range from 1% to 45% [4, 5] and such a phenomenon could certainly explain in some degree ischemic events after CABG. When assessing relationship between postoperative dAPT and both clinical and angiographic outcomes following CABG, the role of aspirin should inextricably be included into considerations. Within dAPT the possible impact of each antiplatelet agent (aspirin and clopidogrel) on clinical and angiographic outcomes should separately be assessed by drug specific platelet function tests, facilitating individual therapeutic approach for each antiplatelet agent postoperatively. Such an approach could distinguish patients with high residual platelet activity, thus proclivity to ischemic events, from those with enhanced platelet inhibition, thus proclivity to bleeding events (notably, not captured in present trial). In our recent study[5], we analyzed the proportion of patients with aspirin resistance, both pre- and postoperatively. Considering all CABG patients, we observed 31/99 (31.3%) patients with aspirin resistance preoperatively [5]. Postoperatively, we registered 46/99 (46.5%) CABG patients with aspirin

resistance, suggesting platelet hyperactivity[5]. A postoperatively registered increase of 15.2% in the proportion of patients with aspirin resistance was found to be significant (p=0.04) as well as higher prevalence of aspirin resistance within diabetic subpopulation (58.5% vs 38%, p=0.04). Postoperatively, we observed significant increase in values of platelet function tests sensitive to effect of aspirin and clopidogrel[5]. Those findings suggest the fact that decision making in postoperative antiplatelet therapy management should be personalized according to drug specific platelet function tests with detection of high residual platelet reactivity and subsequent adjustments in treatment modalities. Administration of dAPT (dosage and duration adjustment) should be also targeted after subsequent platelet function testing. However, this therapeutic approach needs a randomized controlled trial with a large study group to evaluate the benefit of such treatment modality. With this aim we are currently conducting a randomized controlled trial[6]. Patients in whom postoperative multiple electrode aggregometry documents aspirin resistance will be randomized into two groups[6]. The control group will receive 300 mg of aspirin[6]. The dAPT group will receive 75 mg of clopidogrel in addition to 300 mg of aspirin[6]. To our best knowledge, this is the only ongoing clinical outcome trial that will specifically address the issue of dAPT in patients undergoing CABG who have been found to be aspirin resistant in early postoperative phase[6]. Such an approach could shed a light at the possible indication for dAPT in CABG patients[6]. Before final recommendations can be made regarding the impact of dAPT administration after CABG, randomized controlled trials evaluating clinical outcomes and using drug specific platelet function tests are required to address this issue and shift antiplatelet therapy administration management towards personalized approach aiming to minimize bleeding and adverse ischemic events. We congratulate the authors on their elegant and timely research.

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