The impact of platelet reactivity after TAVI on the risk of in-hospital vascular complications and blood transfusions.

Purpose: Dual antiplatelet therapy (DAPT) is currently recommended standard of antithrombotic prophylaxis after TAVI. In-hospital bleeding (BC) and vascular complications (VC) after TAVI are the most frequent events that are crucial for in-hospital mortality. Safety and efficacy of DAPT prophylaxis has not been defined so far. The aim of the study was to assess the importance of platelet reactivity (PLT-R) early after TAVI, in response to clopidogrel and aspirin (ASA), in predicting the risk of in-hospital BC, VC, periprocedural relevant haemoglobin drop (HD), and blood transfusions (BT).

Methods: The single center analysis of PLT-R after TAVI, conducted between 2012-2013yr. PLT-R was measured by light transmittance aggregometry with the VerifyNow P2Y12/Aspirin assays. The results were expressed as P2Y12 reaction units (PRU) and Aspirin reaction units (ARU). The cut off values were: 1. 230 PRU and 550 ARU to identify drug responders, 2. mean values (MV) of ARU/PRU inside responders groups. PLT-R was performed within 24 h before, and on the 6^{th} day after TAVI. BC/VC were defined according to VARC scale, HD was defined as loss of $\geq$ 3 g/dl. Statistical analysis consisted of: chi2 or Fisher exact test, Wilocxon test and logistic regression analysis.

Results: 51 TAVI pts had post-TAVI PLT-R evaluation: 44 (86.27%) pts were on ASA, 37 (72.54%) pts were on Clopidogrel. Non-responders were excluded: 2 (4.54%) pts on ASA, 10 (27.02%) pts on Clopidogrel. Mean values of PLT-R: ARU (451.1 +/- 61.93) and PRU (66.92 +/- 55.55). Aspirin responders with lower ARU had higher risk of early BT (OR 1.013 95% CI [1.001-1.025]; p=0.0374). ARU < MV increased the risk of relevant HD (OR 0.227 95%CI [0.057-0.913]; p=0.037). Colpidogrel responders with lower PRU had higher risk of BT (OR 1.017 95% CI [1.001-1.035] p= 0.042) and VC (OR 1.015 95%CI [0.999-1.032]; p=0.064). PRU < MV increased the risk of early BT (OR 4.812 95%CI [0.898-25.794]; p=0.067) and VC (OR 4.8 95%CI [0.847-27.202]; p=0.076).

Conclusions: 1. Early post-TAVI evaluation of platelet reactivity could be helpful in predicting the risk of in-hospital vascular complications and blood transfusions. 2. Cut off points of ARU< 451.1 predicts relevant periprocedural haemoglobin drop, while PRU< 66.92 predicts in-hospital vascular complications and blood transfusions.