A cute coronary syndrome (ACS) is a life-threatening condition that has to be treated immediately in order to revascularize the jeopardized myocardium. While most patients receive a combination of a pharmacological intervention and placement of a coronary stent, 3 – 15% have to undergo a CABG procedure (1).

Typically, ACS-patients take a dual antiplatelet therapy consisting of acetylsalicylic acid and an inhibitor of the platelet P2Y12-receptor, i.e. clopidogrel, prasugrel and, more recently, ticagrelor. The rationale for such a combination is based on large RCT’s that demonstrate a reduction of ischemic events when compared with patients taking aspirin alone. A typical and not unexpected side-effect of the combination of aspirin and a P2Y12-receptor antagonist is an increase in bleeding complications which is of special interest in the perioperative period. Recently, the newer P2Y12-inhibitors, prasugrel and ticagrelor, have been compared with the old and long-standing substance, clopidogrel, in this regard. Both the combination of aspirin with prasugrel (2) and the combination of aspirin with ticagrelor (3) demonstrated a 2.2 and 1.9% reduction of the composite endpoint of cardiovascular death, nonfatal myocardial infarction and stroke in comparison to patients taking aspirin and clopidogrel at the risk of increased bleeding. Post-hoc analyses of TRITON-TIMI 38 and PLATO evaluating patients undergoing CABG demonstrated as survival benefit of prasugrel and ticagrelor a compared to clopidogrel with overall increased and similar bleeding, respectively (1). Currently, 2011 ESC guidelines therefore recommend (Class IIa/C) withdrawal of clopidogrel and ticagrelor 5 – 7 days before major surgery including CABG (4).

Remarkably, the power of this recommendation is weak due to the lack of prospective RCT’s and, in parallel, partly controversial results in studies analyzing clopidogrel-associated perioperative bleeding. The reasons for these inconsistencies are unknown but may be related to varying definitions of bleeding, retrospective study designs and heterogeneous inclusion criteria of patients. In contrast, the TEG-assessed P2Y12 receptor inhibition has been demonstrated to be associated with bleeding risk in 2 prospective, single center studies in patients undergoing CABG with and without cardiopulmonary bypass, indicating the usefulness of such a diagnostic approach (5, 6).

In this context, the most recent 2012 guidelines of the Society of Thoracic Surgeons (STS)(7) recommend withdrawal of P2Y12 inhibitors “several days” preoperatively but with consideration of “drug responsiveness” and risk of ischemia, indicating a more individual approach when compared to the ESC guidelines. While this indicates the usefulness of preoperative P2Y12 blockade measurement, no validated cutoff’s for bleeding and no favor for a specific type of test exists.

In addition to drug-specific influence on bleeding complications (i.e. degree of P2Y12-receptor blockade) other factors have been demonstrated to be of importance in-
cluding triggers of transfusion, degree of he-
modilution and surgeon’s experience.
In conclusion, new P2Y12 receptor in-
hibitors provide a clear 1-year survival bene-
fit after CABG but may in parallel be associ-
ated with an increased bleeding risk. Current
recommendations regarding the periopera-
tive management of patients taking such
drugs are mainly based on retrospective
studies and post-hoc analyses of RCTs not
controlling for perioperative confounders.
The role of the preoperative assessment of
platelet function is currently unclear but re-
cent studies emphasize the efficacy and safe-
ty of individual instead of general manage-
ment strategies.

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