Use of Cytosorb during Cardiopulmonary Bypass in a Patient Underwent Emergent CABG after a Loading Dose of Ticagrelor: a Case Report

Sibilio S[1], Moneta A[1], Di Mauro A[1], Marotta AM[2], Malara G[2], Barberini L[3], Fattuoni C[4], Cirri S[2], Montisci A[2,5], Donatelli F[1,5].

[1]Department of Cardiac Surgery, Cardiothoracic Center, Istituto Clinico Sant'Ambrogio, Milan, Italy; [2]Department of Anesthesia and Intensive Care, Cardiothoracic Center, Istituto Clinico Sant'Ambrogio, Milan, Italy; [3]Department of Medical Sciences and Public Health, University of Cagliari, Italy [4]Department of Chemical and Geological Sciences, University of Cagliari, Italy; [5]Chair of Cardiac Surgery, Postgraduate in Cardiac Surgery, University of Milan, Italy

Background

European guidelines suggest dual antiplatelet therapy (DAPT) with acetylsalicylic acid (ASA) and P2Y12 antagonists as standard of care to reduce the risk of thrombotic complications in patients with acute coronary syndrome (ACS). However, this therapy is associated to an increased risk of spontaneous and surgical bleeding, the latter frequently observed when emergent coronary artery bypass grafting (CAGB) is required.

Recent studies showed that the intra-operative, on pump, use of Cytosorb might favourably impact on peri-operative bleeding, blood product transfusions and re-exploration, by removing Ticagrelor from the human blood.

Case presentation

We report the case of a 83 years old Italian male, suffering from an inferior ST-elevation myocardial infarction (STEMI), unsuitable for percutaneous coronary revascularization.

The patient underwent emergent CABG 6 hours after the loading dose of 180 mg of Ticagrelor.

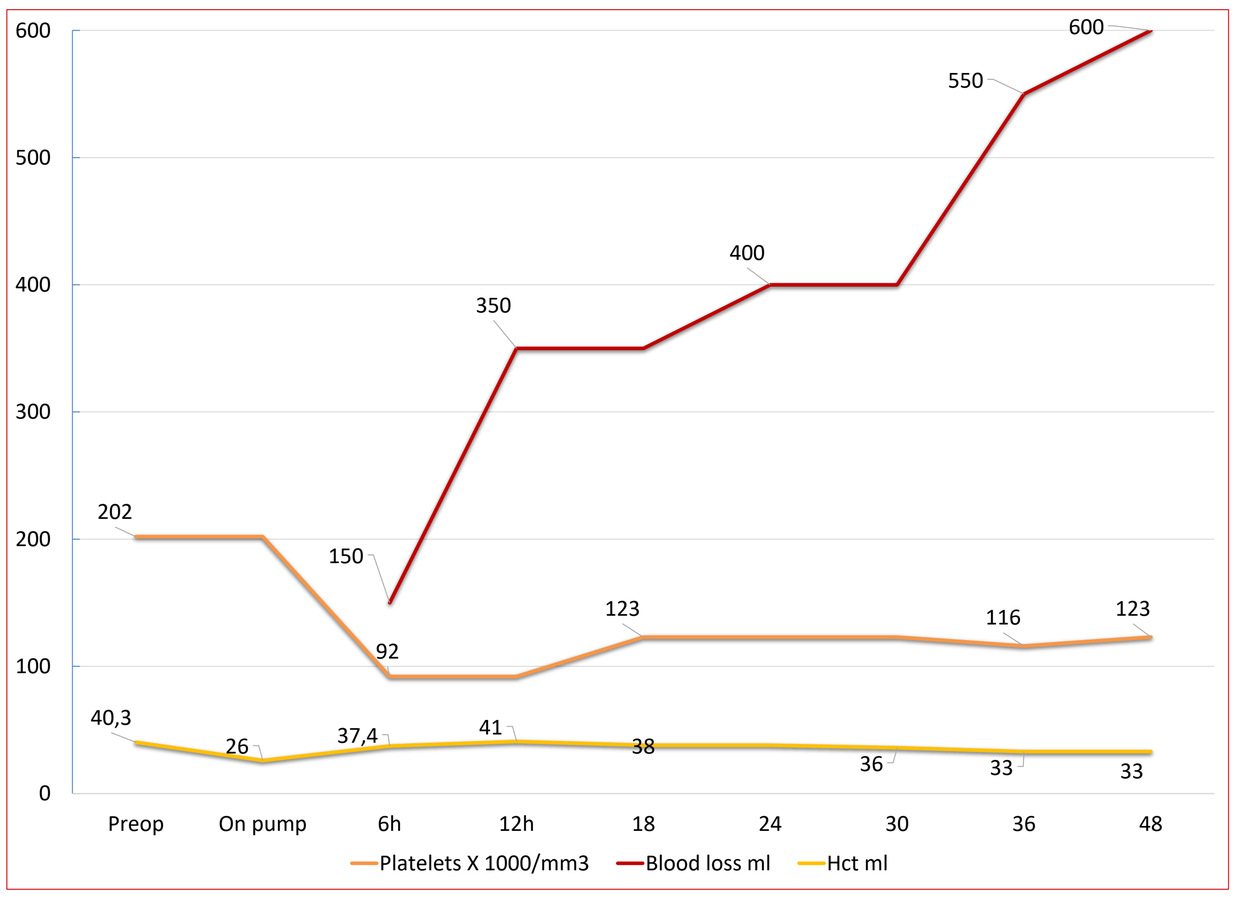
Given the high risk of bleeding, we decided to implement Cytosorb into the heart-lung machine.

Preoperative Diagnostics

- **ECG: i**nferior necrosis and anterior ST-segment depression
- **TnI** HS 176 ng/L, **CK** tot 169 U/L, **CK-MB** 8ng/mL
- **Echo:** akinesia of the postero-lateral and inferior wall of the left ventricle; LVEF 50%; mild mitral regurgitation and moderate aortic regurgitation.
- **Coronary angiography:** distal RCA and PL occlusion; calcific LM and LAD with a severe proximal stenosis and a critical stenosis of left marginal branch. After the procedure, a IABP was implanted.

Surgery and postoperative care

After a median sternotomy and central CPB cannulation, the Left Internal Mammary Artery (LIMA) was anastomosed to the Left Anterior Descending Coronary Artery (LAD), while the Saphenous Vein graft (GSV) to the left marginal branch. Clamping time was 62', cardiopulmonary bypass time 73', total operation time 270'. Weaning from CPB was uneventful and IABP was removed the day after surgery. ICU-stay was 3 days, hospital stay 14 days. The chest drainage volume after 24 hours was 350 ml, needing 2 packed red blood cell (PRBC) transfusions. No platelets transfusions have been given. Thoracic drainages were removed 3 days after surgery and the total blood loss was 550 ml.



Conclusions

Discontinuation of DAPT is highly recommended whenever possible before open-heart surgery.

When not feasible, Ticagrelor adsorption with Cytosorb during CPB may be a therapeutic option.