PB2302 HEPARIN-INDUCED THROMBOCYTOPENIA ANTIBODIES CAN MAINTAIN PLATELET-ACTIVATING PROPERTIES AFTER TWO SESSIONS OF THERAPEUTIC PLASMA EXCHANGE

**Topic:** 32. Platelet disorders

Vasiliki Gkalea¹, Paraskevi Tseke², Thomas Pappas¹, Ageliki Kotsiauti¹, Vasiliki Petrou¹, Erasmia Psimenou², Charis Matsouka¹

¹ Hematology department, Alexandra General Hospital, Athens, Greece; ² Nephrology department, Alexandra General Hospital, Athens, Greece

**Background:**

Therapeutic plasma exchange (TPE) has been used as a salvage therapy in a small subset of heparin-induced thrombocytopenia (HIT) patients (severe or refractory HIT, before heparin re-exposure during cardiac surgery, in bleeding patients and in autoimmune HIT). Existing data show that HIT antibodies can lose platelet-activating properties after one or two TPE sessions, while more sessions may be needed to decrease the antibody titer. However, results may be assay dependent. The utility of Heparin-Induced Multiple aggregometry (HIMEA) in this setting has not been evaluated.

**Aims:**

To assess the effect of TPE on pathogenic HIT antibodies using HIMEA before an emergency surgery for gynecologic malignancy.

**Methods:**

TPE was performed in a 72-year-old patient necessitating emergency surgery for a voluminous uterine sarcoma in the acute phase of HIT (10 days after diagnosis). TPE aimed to reduce post-operative thrombotic risk by decreasing pathogenic HIT antibodies in a patient presenting a high risk of post-operative thrombotic complications. Two consecutive sessions of TPE using Spectra Optia ® Apheresis System were performed immediately before surgery. During each plasma exchange 2 L of plasma were removed and replaced by 5% human albumin. Acid-Citrate-Dextrose (ACD) was used as anticoagulant. Blood samples were taken before and after each TPE session (TPE1 pre, TPE1 after, TPE2 pre, TPE2 after). Removed patient’s plasma collected to the plasmapheresis bag was also tested. IgG anti-PF4/heparin antibodies tested with Enzyme Immunosorbent Assay (EIA) (Hyphen ZYMUTEST™ HIA IgG, Hyphen Biomed) and Heparin-Induced Multiple aggregometry (HIMEA) (Multiplate, Roche) in the absence of heparin (HIMEA saline), in the presence of 1IU/ml unfractionated heparin (UFH) (HIMEA low) and in the presence of 100IU/ml UFH (HIMEA high) were assessed.

**Results:**

Patient’s 4T’s score was 7 (2 for platelet count fall, 2 for timing, 2 for catheter associated venous thrombosis and 1 for other causes), strongly positive IgG anti-PF4 antibodies (OD: 2.43, cut-off<0.3 units) and a HIMEA profile favoring HIT (typical sigmoid curve at HIMEA low, >50% decrease of AUC at HIMEA high, absence of platelet aggregation at HIMEA saline). She was treated with fondaparinux at 1.5 mg/ day due to sepsis-associated acute kidney injury requiring hemodialysis. Platelet count (PLT) were 168 G/l before surgery. After two TPE sessions antibody titers remained unchanged (TPE1 pre: 2.63 units, TPE1 after:2.19 units, TPE2 pre:2.51 units, TPE2 after:5.52 units). Moreover, platelet reactivity remained also strong as demonstrated by high area under the curve (AUC) values in HIMEA low (figure 1). Plasma from the collection bag showed strong EIA and platelet activation test reactivity. No thrombosis nor thrombocytopenia were observed in one month follow-up.
Summary/Conclusion:

Two TPE sessions failed to reduce platelet-activating properties of HIT antibodies as assessed by HIMEA in a cancer patient. TPE could be considered as a therapeutic intervention that can reduce thrombotic risk in patients necessitating an urgent non-cardiac surgery in the acute phase of HIT. However, more data is needed on the clinical benefit and the optimal number of TPE sessions in this clinical setting. Functional assays assessing Fcγ receptor mediated platelet activation may help guide the timing of the surgery.