INTRODUCTION: Patients with severe thrombocytosis (>750,000/uL) have increased risks for clotting and bleeding (1) and treatment is controversial during CPB.

CASE PRESENTATION: A 75kg 44 year old female suffered a NSTEMI due to 70% LAD and D1 lesions. Because of medical compliance issues and decreased access to future interventions, she underwent CABG rather than PTCA. All laboratories were normal except a platelet count =1,592,000/uL (Hct =33 and INR=1.1). A pre-leukemic state was the working diagnosis, and she received 1.5 g hydroxyurea daily to begin platelet lowering therapy. However because the procedure was deemed semi-urgent, she underwent surgery on the fourth day of admission after receiving treatment with the antiplatelet medications aspirin (325 mg daily), IV heparin (900 U/hr), and clopidogrel (600 mg/75mg daily). Standard general anesthesia was induced. Baseline ACT was 133s with a calculated porcine heparin dose of 30,000U by the Heparin Management System (Medtronic Hepcon HMS Plus) for a target ACT of 450s. The resulting ACT was 397s, so another 10,000U was given, yielding an ACT of 495s. Aminocaproic acid (5 gram load, 1.5 gram/hr infusion) was given prior to heparin. The patient received no further heparin for the CABG. She received 3900 mL of crystalloid (1300 mL during CPB/2400 mL pre and post CPB). The lowest platelet and hematocrit values were 778,000/uL and 21 g/dL in the OR. The patient was extubated the next day after receiving 2U of PRBCs for mediastinal bleeding (Hct of 17% prior, which raised the Hct to 26%). The platelet count subsequently peaked at 2,800,000/uL and was found to be reactive due to undiagnosed HIV.

DISCUSSION: Little exists in the literature on CPB anticoagulation management in patients with thrombocytosis. Reactive and myeloproliferative thrombocytosis have been implicated in early graft failure and post-op MI in CABG patients (2). Because thrombocytosis may interfere with heparin estimation using an HMS system, higher heparin doses may be required (3). Some authors have advocated for acute plasmapheresis for counts > 2,000,000/µL (3), or hydroxyurea if the procedure can be delayed 1-2 weeks for successful inhibition of platelet DNA replication (4), while others advocate OP-CAB to avoid CPB if the anatomy is amenable (5). Due to the acute nature of this patient, we ensured she had preoperative aspirin, heparin infusion until induction, and relied on the normal hemodilution of bypass to acutely decrease the platelet count. Although rare, reactive thrombocytosis requires careful diagnosis and planning in the patient who undergoes heart surgery.

REFERENCES