Management of a multi-visceral transplant in a patient with a history of non-HLA mediated hyper-acute vascular rejection of a prior transplant

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Introduction
Solid organ transplantation provides many anesthetic challenges related to anhepatic physiology and hemodynamic changes.

We present a multi-visceral transplant in a 3 year-old which was further complicated by a complex hemostatic profile related to non-HLA mediated anti-AT1R antibodies.

Case Presentation
• 3 y/o female, ASA 4
• PMHx – prematurity, gastrochisis, and failure to thrive
• Underwent bowel lengthening surgery as an infant followed by attempted isolated small bowel transplant
• Hyper-acute vascular rejection of her isolated small bowel allograft led to TPN dependence
• Hematology workup revealed anti-AT1R antibody-mediated hypercoagulability
• Despite losartan and anticoagulation, recurrent thromboses led to difficulty maintaining vascular access for TPN and dire need for a new transplant

Prior Transplant
• isolated small bowel
• hyperacute rejection

Present Case
• combined liver, small bowel, & pancreas

Keys to Anesthetic Management
• Understanding the factors of her hemostatic profile
• Autoimmune hypercoagulability
• Chronic anti-coagulation therapy
• TPN related liver dysfunction
• Frequent POC viscoelastic coagulation monitoring in our case thromboelastography (TEG) analysis to guide management of the coagulation profile
• IVIG in addition to standard immunosuppressants
• Constant communication with the surgical team regarding the conditions of the surgical field

Results
• Successful transplantation without intraoperative hyperacute rejection
• Transferred to the PICU with plans for q 4 hour trans-hepatic arterial Dopplers, repeat IVIG dosing, and heparin therapy starting 24 hours post-transplant

Conclusions
• Anti-AT1R antibodies can be responsible for hyper-acute rejection in small bowel transplants
• Use of POC viscoelastic coagulation monitoring is critical in management of patients with complex hemostatic profiles
• IVIG can help with immunosuppression of autoimmune hypercoagulability
• Communication with surgical team and pre-surgical planning with hematology is essential

Effects of Stimulatory Anti-AT1R Antibodies

AT1R
hypercoagulability
Inflammation
hypertension

anti-AT1R antibody

hyperacute rejection of previous transplant
loss of vascular access sites for TPN
elevated risk of future graft loss and failure

References