Acute Alcohol Toxicity in a Neonate
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Introduction
• Alcohol sclerotherapy has long been used by interventional radiologists as a treatment for vascular malformations.
• Ethanol is the most potent sclerosant and affords the lowest rates of malformation recurrence compared to other agents.
• Ethanol is usually well tolerated, but has the potential for devastating complications such as soft tissue necrosis, nerve damage, hemolysis, thromboembolism, arrhythmia, acute pulmonary hypertensive crisis, cardiovascular collapse, and death.

Case
• A 3.4 kg, 2-week-old female presented for general anesthesia to facilitate ethanol sclerosis of this lesion which was fully obstructing the left orbit preventing sight, despite a preserved normal eye beneath.
• The patient was taken to the IR catheterization lab where a general anesthetic with endotracheal intubation was performed.
• After contrast was injected to rule out rapid venous outflow drainage, ethanol was injected in divided doses over 20 minutes up to a total volume of 4.5 mL (1.32 mL/kg). Anesthesia was uneventful until the area was gently massaged.
• Suddenly, oxygen desaturation into the 80’s, decreased airway compliance with manual ventilation, mottling of the skin, and a small amount of pink frothy sputum in the ETT occurred.

Management
• We transported the patient to the Neonatal Intensive Care Unit.
• Inhaled nitric oxide was initiated.
• STAT bedside echocardiogram revealed severe right ventricular dilatation and systolic dysfunction, main pulmonary artery dilatation, RVSP>45+RAP, and shunting right to left across a PFO.
• Epinephrine infusion was weaned off after 32 hours and nitric oxide over 60 hours.
• On post-operative day 4, repeat echocardiogram demonstrated complete resolution of cardiac dysfunction, and the patient was discharged home on post-operative day 7.

Discussion
• Ethanol appears to have increased risk compared with other sclerosants.
• Reactions occur rarely but despite even conservative dosing guidelines and with potentially devastating consequences. (<1mL/kg total in divided Q5 min 0.1mL/kg or less boluses)
• Unclear mechanism and threshold for acute pulmonary hypertensive crisis and cardiovascular collapse.
• Increased risk with head/neck lesions.
• Beware of complications and CV collapse in postoperative care unit as PA pressures increase most postoperative.
• Alcohol intoxication itself can produce complications.
• Some authors advocate routine pulmonary artery catheter monitoring with nitroglycerin infusion available.
• Inhaled nitric oxide therapy for acute pulmonary hypertensive crisis should be considered.
• Alcohol sclerosis remains a useful treatment for vascular malformations; therefore anesthesia providers must be aware of surgical implications and dosing guidelines, and must anticipate even rare but potentially devastating complications.

References