**Neonatal Endoscopic Third Ventriculostomy: Anesthetic Considerations**

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**Introduction:** Endoscopic third ventriculostomy (ETV) is a minimally invasive alternative to shunting for patients with non-communicating hydrocephalus. Originally developed in the 1920’s by William Mixter, ETV has become increasingly popular with improved technology and equipment (El-Dawlatly, 2004). During the procedure, access to the neonatal brain is gained via the anterior fontanelle. The scope is passed from the lateral ventricle to the third ventricle, where the floor is then punctured to allow passage of CSF to the subarachnoid space.

**Case Report:** 28 week GA neonate s/p grade II IVH presented for ETV with omaya reservoir placement on DOL 21. Physical exam in NICU showed stable vital signs and a weight of 1.44kg. The child had macrocephaly (head circumference 29cm) with widely split sutures and flat fontanelles but grossly normal neurologic exam. MRI of the brain demonstrated enlargement of the lateral and 3rd ventricles with a normal 4th ventricle and no clear delineation of the aqueduct—suspicious for obstructive communicating hydrocephalus.

Upon arrival in the OR, the patient was preoxygenated, and given 5mg propofol, 2mcg fentanyl, and 0.25mg cisatricurium via an in-situ 24 gauge PIV in the left AC. The patient was then mask ventilated with the aid of a 3mm oral airway and a shoulder roll was placed. He was intubated on first attempt with a grade I laryngoscopic view using a miller 0 blade and a 2.5mm uncuffed ETT.

A cisatricurium infusion was begun at a rate of 0.5mcg/kg/min and anesthesia was maintained with isoflurane and an FiO2 of 30%. After rotating the table 90 degrees, the patient was covered with a transparent drape and a shoulder roll was placed. He was intubated on first attempt with a grade I laryngoscopic view using a miller 0 blade and a 2.5mm uncuffed ETT.

However, the EKG lead tracing was lost at one point. The leads were visualized and replaced easily underneath the transparent drape without disturbance of the surgical field. The patient was returned to the NICU intubated after an uneventful procedure.

**Discussion:** The case described above is notable for its choice of a cisatricurium infusion to maintain paralysis. The patient’s immobility was paramount given the delicate neurological structures that were being traversed. A cisatricurium infusion was chosen due to its relatively quick offset in order to assess neurological status as soon as possible post-operatively.

**References:**