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What could affect FHR during MMC repair? An Anesthesia Perspective

Objective

Review anesthetic management for fetoscopic myelomeningocele repairs. Collect retrospective data from maternal anesthetic records of both open and fetoscopic MMC repairs at Cincinnati Children's Hospital from 2011 to 2023. Review FHR trends in addition to specific anesthesia indices.

Method

Anesthetic records of 87 fetoscopic MMC repair patients and 59 open MMC repair patients reviewed. Data collected: maternal temperature (incision and range for case), FHR (preoperative, after laparotomy, end procedure), surgical time, fetal IM atropine dose, vasopressor use, magnesium levels (fetoscopic).

Results

Average surgical time: 271 mins (fetoscopic) vs. 160 mins (open). Open FHR averages: Preop 147bpm, post laparotomy 143bpm, end procedure 141bpm. Fetoscopic FHR averages: Preop 145bpm, post laparotomy 130bpm, end procedure 126bpm. Average incision temperature: 35.9°C open and 36.0°C fetoscopic. IM atropine dosing mostly consistent with 20mcg/kg.

Conclusion

Anesthetic and surgical techniques for prenatal MMC repairs have evolved. Low maternal core temperature considered a factor contributing to low FHR, however, no correlation in this study. Dosage of atropine (historically minimum 0.1mg dose vs. 20mcg/kg) did not result in varying HR outcomes. Open MMC repairs did not have same FHR decrease as fetoscopic. Potential causes for lower FHR in fetoscopic cases: increased GA exposure time, CO_2 insufflation, early magnesium.

Biography

Dr. Nicholas Rahn, MD is an Assistant Professor in the Department of Anesthesiology and Pain Medicine at the Johns Hopkins University School of Medicine and a paediatric anesthesiologist at the Johns Hopkins Children's Center, Baltimore, Maryland, USA. He is committed to delivering safe, high-quality perioperative care for infants, children, and adolescents while advancing education and research in paediatric anaesthesiology.

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