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Effects of anesthesia on inducibility during pediatric electrophysiology studies

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Background & Introduction: Anesthesia has become an important part of pediatric electrophysiology studies (PEP). The purpose was to determine, (1) the prevalence of supraventricular tachycardia (SVT) and sinus tachycardia (Stach) during anesthesia induction, and (2) lack of inducibility of SVT during PEP under anesthesia.

Methods: IRB approved retrospective review of PEP (1/99-1/14). Inclusion criteria: ≤21 years, documented SVT prior to PEP, anesthesia. Data review: demographics, EP and anesthesia records. Two groups identified, Intravenous (IV) and inhalational anesthesia (I). Induction of SVT and Stach prior to initiating EP study was recorded as was failure to induce SVT during PEP.

Results: Inclusion criteria were met by 378 patients, 57% males, and median age 14 years. IV anesthesia was in 72%. During induction, only 1 patient from IV group developed SVT, (WPW patient), 10% of patients developed Stach and patients with WPW are twice at risk of developing Stach (16.19% vs. 8.06%; p=0.02). Stach was seen more commonly with I induction (59% vs. 41%; p<0.0001). The most common drug for I was sevoflurane (89%); and no differences were identified between drugs. Failure to induce SVT during PEP was 13% and no differences seen between groups.

Conclusion: Route of anesthesia induction, inhaled or intravenous do not increase the risk of developing SVT. Sinus tachycardia is a common occurrence, and failure to induce SVT did not affect route of anesthesia.

Biography

Christopher Snyder is the Director of Pediatric Cardiology at Rainbow Babies and Children's Hospital, Case Western Reserve University School of Medicine. His interests include general pediatric cardiology and adult with congenital heart disease as well as a sub-specialty in pediatric and adult congenital electrophysiology on an inpatient and outpatient basis.

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