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Dexmedetomidine use in patients undergoing electrophysiological study for atrial tachyarrhythmias

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Dexmedetomidine (DEX) is a selective alpha-2 adrenergic agonist with sedative, analgesic and anxiolytic properties. DEX has not been approved for use in pediatrics. DEX has been reported to depress sinus node and atrioventricular (AV) nodal function in pediatric patients; it was even suggested that the use of DEX may not be desirable during electrophysiological studies (EPS). Other studies have reported no association between DEX use and any significant EKG interval abnormalities in patients with congenital heart disease, other than a decrease in HR. We reviewed all cases presented to the CCL for diagnosis or treatment of atrial tachyarrhythmias since 2007. The patients were stratified into three different groups. Group 1 patients did not receive any DEX. Group 2 patients received a DEX infusion of 0.5-1 mcg/kg/hr. Group 3 patients received a DEX infusion of 0.5-1 mcg/kg/hr and a DEX bolus prior to the infusion of 0.5-1 mcg/kg. We then compared those patients for the following variables: Demographic data and anesthetic data like age, sex, height, weight; mask vs. IV induction, identity of induction agent, amount of sevoflurane and propofol used; amount of DEX used; presence of congenital heart disease and other co-morbidities; the need for isoproterenol (ISO) and dose, the need for adenosine and dose and the need for any other medications to effect rhythm both before and after RFA; the ability to induce the arrhythmia, the type of arrhythmia, the presence of Wolf-Parkinson-White (WPW) syndrome, the presence of an accessory pathway, the ablation rate and the recurrence rate. There were no differences in any of the demographic data between groups. There was no difference in the anesthetic data, except there was a lesser amount of propofol and sevoflurane used in the DEX groups. There was no difference in the electrophysiologic parameters between groups, except the Group 1 patients did require the use of ISO in the pre-ablation period less often compared to the DEX groups. However, there was no difference in the ability to induce the arrhythmia, the percentage of patients ablated, and the recurrence rate between groups.

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Right ventricular outflow tract reconstruction with handmade valve conduit: A short experience from a developing country

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Background & Aim: Abnormalities of right ventricular outflow tract continuity are one of the most commonly encountered entities in congenital cardiac surgery. Various strategies utilize homografts, synthetic valve conduits, Contegra, or patch enlargement with valve replacement ($2500) to restore anatomical and functional continuity between right ventricle and pulmonary artery. In countries like Pakistan, these conduits may not be easily available or affordable. We report the experience of our short observational study of using a handmade tri-leaflet valve conduit to establish right ventricular outflow tract and pulmonary artery continuity ($700).

Materials & Methods: From September 2015 to December 2016, a total of 15 patients with different diagnoses of congenital heart disease in the pediatric age group underwent corrective surgery along with restoration of RV to PA continuity, by using a handmade valved conduit. The size of the conduit is determined by using an available nomogram. A 10x10 cm bovine pericardial sheet is used to construct the conduit and a 0.5 mm thin polytetrafluoroethylene (PTFE) sheet is used to construct the valve.

Results: Patients ranged from 1 year to 16 years. Seven patients had previous palliation. One patient underwent 3rd time redo procedure for RV to PA homograft stenosis. Late postoperative complications were observed in 2 patients. One patient developed aneurysm at RVOT-conduit junction requiring surgical repair and the other underwent conduit dilatation for moderate stenosis (gradient 60 mmg). No significant regurgitation was observed and the gradients were a mean of 25 mmHg.

Conclusions: This short report highlights that the handmade valve conduits are a cost effective alternative where well-established conduits have cost implications and questionable availability.

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