

The diagnostic accuracy of transesophageal electrophysiology study in adolescents - 6 years follow-up

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Introduction: Arrhythmia-suggesting symptoms without a documented event are a common clinical scenario in adolescents. Transesophageal electrophysiology study (TES) is a relatively non-invasive diagnostic method with a potential to address this issue, but consensus on TES application in paediatric patients is missing. We evaluate TES diagnostic accuracy among adolescents with different indications for TES.

Methods: TES was performed in 88 consecutive patients between 2011 and 2017 in a single tertiary centre. Examinations were done under local anaesthesia, with a routine protocol, by one experienced paediatric cardiologist. We analysed TES outcomes and medical documentation and performed phone interview at a median 2,6 years (range 0,1 – 6,8) from TES. Follow-up was available in 58 (66%) patients, aged 15,7 years (SD 1,5). In this cohort, TES was performed due to arrhythmia-suggesting symptoms (collapse, palpitations) in 44, control after radiofrequency ablation (RFA) in 3, risk stratification in asymptomatic pre-excitation syndrome in 7 and conduction assessment in 5 patients.

Results: Arrhythmia was induced in 10 out of 44 suspected patients. They were referred for invasive electrophysiological study (EP) with RFA in case of a positive result (9 patients, positive predictive value 90%). Among 34 patients without relevant arrhythmia during TES, 25 patients experienced further symptoms, 26 remained in outpatient observation, and 4 underwent EP with RFA (negative predictive value 88,2%). In a subgroup controlled after RFA, no arrhythmia was induced, but one patient needed the second EP with RFA later on. In the pre-excitation subgroup, supraventricular tachycardia episode was induced in one case. This patient and 3 other with effective refraction equal 260 ms or less were referred for the EP study with subsequent successful RFA. Follow-up in remaining cases was uneventful. In a group referred for conduction assessment, atrioventricular node dysfunction was diagnosed in 3 patients. There was one episode of mild, TES-induced conduction disturbances, and no long-term complications.

Conclusions: TES is an effective and safe procedure with the potential for wide clinical application in adolescents. High positive and negative predictive values in symptomatic adolescents with suspected arrhythmia could improve selection for invasive EP, although no definitive arrhythmia exclusion could be warranted by TES.