

## Use of implantable loop recorders in children with syncope

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Prior studies have demonstrated a high value of the implantable loop recorders (ILR) in the diagnostic work-up in adults with unexplained syncope (UnS) and palpitations. Evidence of indications and benefits of ILR in the pediatric population is still insufficient. Patients' and family history, physical examination are unable to determine the mechanism of syncope in 15-20% of children with recurrent UnS to avoid risks associated with arrhythmogenic syncope. ILR allow prolonged monitoring of heart rhythm for periods from a few days to several years, making it possible to detect inherited arrhythmias in children with UnS.

**Methods.** ILRs were implanted in 273 children (49% boys) aged 2.5 to 17 ( $12.2 \pm 4.4$ ) with recurrent UnS. Incidence of syncope varied from once a week to once a year. Personal and family history, physical examination including ECG, stress test, holter monitoring, tilt-table and other tests were unable to identify the cause of syncope.

**Results.** For 242 pts ILR monitoring was completed due to the symptom-rhythm correlation or detection of arrhythmia (50% - clinically positive cases) or due to the end of 36-mnth follow-up. Arrhythmogenic syncope were diagnosed in 29% (71 from 242). 40% reveal confirmed positive cases were caused by arrhythmias. Among arrhythmic events 94% are related to bradyarrhythmias, 46 caused by severe asystole and 13 caused by AV block. Ventricular fibrillation was diagnosed only in 3 pts with long QT syndrome. 60 pts had asystole lasting 3 to 30 s, 35 pacemakers and 3 cardioverter defibrillators were implanted. The frequency of complications was 1.8%.

**Conclusion.** The efficiency of ILR monitoring in children with UnS is 50%. Arrhythmogenic syncope were diagnosed in 29% cases (mostly bradycardia). So, in children ILR technology is an efficient and secure method for diagnosing the cause of UnS.