[gw22-e0137] **STUDY OF DIAGNOSING UNEXPLAINED SYNCOPE WITH INSERTABLE LOOP RECORDER SYSTEM**

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Objective To explore use of implantable loop recorder in diagnosis and treatment in patients with recurrent unexplained syncope and presyncope.

Methods From October 2002 to April 2011, we implanted ILR (13 Reveal Plus 9526 and 3 Reveal DX 9528 or Reveal XT 9529, Medtronic) in 16 patients (aged 46.7±21 years, range: 14–78 years, six female) with unexplained syncope. Among them, three patients had coronary heart disease and hypertensive heart disease, two patients had hypertensive heart disease, one had radio-frequency ablation (RFCA) for supraventricular tachycardia (SVT), one had occluded operation for atrial septal defect, one had atrioventricular node ablation plus VVI pacing after a failed RFCA for sustained atrial flutter and atrial fibrillation, one intraventricular haemorrhage with right and softening of the brain, one adversely affect epilepsy, the other six without obvious abnormal findings. Seven patients had basic arrhythmia. Inserting sites were chosen according to the surface ECG; implantation was performed under local anaesthesia in the left thorax region. Parameters of ILR were programmed appropriately, and 16 patients, along with their family members, were instructed the use of the hand-held activator. All patients were intensively followed-up and corresponding therapy was implemented

Results All patients were followed-up at a mean during of 61.8±31.5 months (0.3–102 months). 15 survived at end of follow-up except one died of myocardial infarction. Mean monitoring period was 16±3.4 months (range 0.3–21 months), 38 syncopal episodes recurred in 12 patients. Thirty-eight events were patient-activated, and 606 were auto-activated events. Arrhythmical events recorded by ILR included severe sinus bradycardia (n=64), sustained ventricular tachycardia (VT, n=50), non-sustained VT (n=10), SVT (n=149), intermissing III AVB (n=16), VT and ventricular fibrillation (n=2), PVC (n=21). Documented arrhythmic events of seven patients who had basic abnormal ECG exceeded that of other patients ($p<0.005$). Arrhythmia diagnosis was obtained in 12 patients. In two patients, arrhythmia could be ruled out as the reason of syncope. In the two patients, there were no recurrent syncope or useful arrhythmia events recorded, and the cause of syncope remained unknown. The diagnostic efficiency of ILR was 87.5%. Medical therapy was implemented in 16 patients on the basis of the data recorded by ILR, syncope episodes decreased after medication.

Conclusions Long-term tracing of arrhythmia helped to identify syncope secondary to abnormal cardiac rhythm. ILR might be a simple, safe and effective way to identify arrhythmia related syncope, especially for those patients with heart disease or latent arrhythmia. ILR is also valuable in directing therapy and detecting the effect of therapy.