Familial Neurally Mediated Syncope
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Abstract

Introduction: Compared to tachyarrhythmias, little information is available regarding familial bradyarrhythmias.

Cases report:
Case 1: A 52-year-old woman (proband) was referred because of repeated syncope. At the time of electrophysiological study, a 5.4 sec pause by sinus arrest with chest discomfort was documented. After permanent pacemaker (PPM) implantation, she did not suffer from syncope at all.

Case 2: A 27-year-old man (proband’s son) experienced fainting and syncope for few years. He experienced these symptoms especially during bathing or hot days. 2 months after implantable loop recorder (ILR) implantation, he suffered from syncope during bathing and he was almost drowned. 10.2 sec pause related with sinus arrest was recorded. He did not have any syncope after PPM implantation.

Case 3: A 25-year-old woman (proband’s daughter) had repeated fainting and syncope following nausea. Baseline systolic BP was around 90 mmHg. Head-up tilt test revealed no obvious abnormality except mild decreasing BP (<10 mmHg). Because ILR did not record any ECG abnormalities even during spontaneous fainting, she is treated medically.

Conclusions: Though any genetic abnormalities were not detected in this family, familial neurally mediated syncope is mostly suspected.
Evaluation Of Clinical Usefulness Of Standardized, Questionnaire-Based History Evaluation In The Diagnosis Of Syncope


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Abstract

Introduction and objectives: The aim of our study was evaluation of clinical usefulness of standardized, questionnaire-based history evaluation in the diagnosis of syncope in patients admitted to Syncopal Unit.

Methods: We observed 920 consecutive pts. with syncope (552 women, 60%, aged 12-89 yrs., median of age 41 yrs.), diagnosed in our Syncopal Unit of our Department during last 3 years. In all patients a of standardized questionnaire for history evaluation (SQfHE) was used during initial evaluation together with physical examination, ECG evaluation, orthostatic BP measurement and carotid sinus massage in pts. over 40 years of age. This questionnaire included question regarding circumstances of syncopal episodes, evaluation of prodroms and syncope course according to last ESC guidelines for diagnosis and treatment of syncope. Calgary Syncope Symptom Score (CSSS) proposed by Sheldon as well as OESIL Score (OS) were implemented into SQfHE. If CSSS was -2 or more reflex syncope was diagnosed or suspected – if concomitant disorders were presented. If OS was higher than 0 – additional diagnosis was performed.

Results: Based on initial evaluation diagnosis of syncope was done in 42.4% of pts., Suspected diagnosis of syncope was made in further 39.6% of pts. Only 18% of patient had no established the reason of syncope based on initial evaluation. Hospitalization rate, longer than 1 day was 8.2%.

Conclusions:
1. Standardized, questionnaire-based history evaluation is very useful in the diagnosis of patients with syncope admitted to Syncopal Unit.
2. Standardized, questionnaire-based history evaluation allow to make diagnosis, based on initial evaluation in over 40% of patients.
3. The ratio of undiagnosed syncope based on initial evaluation was only 18% – in these patients the additional diagnosis was performed.
4. Standardized, questionnaire-based history evaluation is also useful in limitation of hospitalization rate needed for diagnosis of patients with syncope.
Analysis Of Baroreceptor Sensitivity During Head-Up Tilt Test In Patients With Vasovagal Syncope


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Abstract

Introduction and objectives: The aim of study was an analysis of baroreceptor sensitivity during head-up tilt test (HUTT) in patients with vasovagal syncope.

Patients and methods: Study population: we observed 240 pts. (78 men, 162 women) aged 18-56 yrs (median of age: 23 yrs) with vasovagal syncope (VVS) referred to head-up tilt test (HUTT). Cardio- and neurogenic reasons of syncope were previously excluded in all pts.

All pts underwent HUTT performed according standard Westminster protocol. Continuous non-invasive monitoring of heart rate (HR) and blood pressure (beat-to beat) was performed using NEXFIN analyser. Based on registered HR and blood pressure values the baroreceptor sensitivity index was calculated both for systolic (BRS-S) and diastolic (BRS-D) blood pressure. We analyse values of baroreceptor sensitivity indexes between pts. with and without HUTT-induced syncope as well as between different types of vasovagal response.

Results: Significant reduction of baroreceptor sensitivity index for systolic blood pressure was observed in patients with positive HUTT in relation to non-fainters (8.6 vs. 21.4 ms/mmHg; p<0.015) whereas there was no significant differences regarding baroreceptor sensitivity index for diastolic blood pressure (15.3 vs. 15.6 ms/mmHg, p=0.85). There were no significant trend thru higher values of BRS-S in patients with cardiodepressive VVS.

Conclusions:

1. Induction of vasovagal syncpe during head-up tilt test was concerned with significant reduction of baroreceptor sensitivity calculated for systolic blood pressure.

2. Impairment of baroreceptor sensitivity seems to play an important role in the patomechanism of vasovagal syncope.
Misdiagnosis Of Neureally-Mediated Syncope Revealed By Prolonged ECG Monitoring. An Analysis From The Third International Study On Syncope Of Uncertain Etiology (Issue-3)


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Abstract

Objectives: According to the guidelines of the European Society of Cardiology a likely diagnosis of neurally mediated syncope (NMS) can be made when the patients have a consistent history and competing diagnosis are excluded. In the present study we validated the initial diagnosis of NMS by means of implantable loop recorder (ILR) documentation.

Methods and results: In the Third International Study on Syncope of Uncertain Etiology (ISSUE-3) registry, 504 NMS patients ≥40 years who had suffered, in the prior 2 years, ≥3 syncopal episodes received a ILR and were followed-up for a mean of 15±11 months. A diagnosis was achieved in 187 of them with an estimated diagnostic yield of 31% (95% CI 27-36) at 1 year, 40% (95% CI 36-45) at 2 years and 47% (95% CI 40-53) at 3 years. NMS was confirmed in 162 (87%) patients (asystolic in 99 and likely hypotensive in 63) and was ruled out in other 25 (13%) who had an intrinsic cardiac arrhythmic cause (atrial tachyarrhythmias [#9], long pause at termination of tachyarrhythmia [#7], persistent bradycardia [#3], ventricular tachycardia [#2]) or a non-arrhythmic loss of consciousness (non-syncopal [#3], orthostatic hypotension [#1]). No clinical baseline feature was able to predict an intrinsic cardiac cause with the exception of a more frequent non-syncopal atrial tachyarrhythmias on clinical history which was present in 38 % of cardiac vs 5% of NMS patients (p=0.001). Treatment: pacemaker in 108 (101 NMS and 7 cardiac), education and counterpressure maneuvers in 61 NMS, catheter ablation in 6 cardiac, ICD in 2 cardiac, other treatments in 5 cardiac patients. Among established NMS patients, pacemaker therapy was more effective then no pacemaker therapy in preventing syncopal recurrence (26% vs 54% at 21 months of follow-up, p=0.01).

Conclusions: The accuracy of the diagnosis of NMS made at initial evaluation is 87%. A small not irrelevant number of patients have a different diagnosis, especially an intrinsic arrhythmic cause. Pacemaker therapy is effective in patients with NMS established by ILR documentation.
Additional Diagnostic Value Of Implantable Loop Recorder In Patients With Initial Diagnosis Of Non-Syncopal Transient Loss Of Consciousness

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Abstract

Objectives: Non-syncopal transient loss of consciousness (T-LOC) resemble syncope and differential diagnosis may be challenging. Implantable loop recorder (ILR) is useful but it has never been systematically assessed.

Methods and results: 57 patients received an ILR, who had had 4.6±2.3 episodes of T-LOC to distinguishing epilepsy from syncope (#28) or fall from syncope (#29). During 20±13 months of follow-up, 33 patients (57%) had an ILR-documented event. An arrhythmia was documented in 15 (26%) patients: asystole in 7 patients with suspicion of epilepsy and in 5 patients with fall; atrial tachyarrhythmia in 1 and 2 patients respectively. ILR excluded an arrhythmia in 18 patients, supporting the diagnosis of epilepsy in 6 (11%), non-accidental fall in 10 (18%) patients and hypotensive syncope in 2 (3%). A diagnosis remained unexplained in 24 (42%) patients. Therapy: antiepileptic drugs in 6 (10%), pacemaker in 11 (19%), antiarrhythmic drugs in 4 (7%), reduction of hypotensive drugs in 1 patient (2%). No specific therapy in 11 patients (18%).

Conclusions: ILR provides a diagnostic value in “difficult” patients with initial diagnosis of non-syncopal T-LOC.
Abstract

Introduction: Implantable loop recorders permitted to clarify the syncope aetiology with negative when basic exams are inconclusive. They are especially useful when the cause of syncope is related to transitory bradycardia or sinus arrest with sporadic symptoms. The authors aimed to evaluate the influence of cardiovascular risk factors and previous electrocardiogram (ECG) conduction disturbances in indication to implant definitive pacemaker in patients with syncope and dizziness who implanted an ILR.

Methods: we evaluated 63 patients with an ILR implanted between 2002 and 2012. The mean age was 62.3 years old and 22% were diabetic, 59% had hypertension, 2% were current smokers and 41% had elevated blood lipids. The ECG previous to ILR, presented with first degree auricular-ventricular block in 13.2% of patients, complete left bundle branch block in 7.3%, right bundle branch block in 5.5% and left anterior fascicular block in 9.1%.

Results: ILR allowed the diagnosis of the aetiology of syncope in one third of patients, and the causes identified were sinus node dysfunction (70%), complete AVB (20%) and supraventricular tachycardia, including atrial fibrillation (10%). It also permitted to exclude dysrhythmic events as cause of syncope in 33% of patients, as event reorder was activated and no ECG disturbance was found. A pacemaker was implanted in 30% of patients, about 20 months after ILR. Of the patients who needed pacing, 42% were diabetic and we also found that more than half of the diabetic patients needed a pacemaker according to current guidelines (p<0.05). No relationship was found with other risk factors. Curiously, previous conduction disturbances did not predict the indication to pacemaker placement, as one expected.

Conclusions: with this study we realized the relevance of ILR use, allowing us to diagnose disritmica events in 30% of patients and excluding this diagnosis in another 32%. It also alerted us to the need of a low threshold when suspecting sinus node disease. We also concluded that diabetes predicts better the indication to pacemaker placement than previous conduction disturbances in these selected patients. This could be explained by the dysautonomic dysfunction often seen in diabetics.
Efficacy Of Electrical Velocimetry (EV) For The Diagnostic Of The Progressive Orthostatic Hypotension (POH)

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Abstract

Introduction: To study the efficacy of the method of EV as alternative to continuous blood pressure (BP) monitoring by more sophisticated and expensive devices using an original algorithm and standard ECG electrodes without continuous BP recording.

Methods: We evaluated 63 patients with an ILR implanted between 2002 and 2012. The mean age was 62.3 years old and 22% were diabetic, 59% had hypertension, 2% were current smokers and 41% had elevated blood lipids. The ECG previous to ILR, presented with first degree auricular-ventricular block in 13.2% of patients, complete left bundle branch block in 7.3%, right bundle branch block in 5.5% and left anterior fascicular block in 9.1%.

Methods: 172 patients referred for syncope of unknown etiology underwent tilt testing (TT) with nitroglycerine challenge. SVR, CO, SV and HR were recorded beat-to-beat by Aesculon-Osypka monitor using 4 standard ECG electrodes. Non-invasive BP was measured manually.

Results: POH was found in 12 patients and NTG was used in 3 of them. TT was negative in 15 patients. The SVR (dyns/cm5/m2) decreased progressively: 1873±521 initially, 1201±225 (p=0.01) at symptom onset and 901±170 (p<0.01) at the end of test. There was concordance with the BP behavior. Maximum heart rate in POH patients was 98±31 vs. 121±21 (p=0.01). The decrease of SVR was predictive of a positive response.

Conclusions: EV correctly identified the hemodynamic pattern of the POH syndrome. Correlation with other techniques are needed for further assessment.