Prevalence of early repolarization in congenital long QT syndrome. A combination of early and delayed repolarization

Mathieu Audoubert (1), Anne Rollin (1), Philippe Maury (1), Rémi Chastre, Caroline Himbert, Françoise Hidden-Lucet, Estelle Gandjbakhch

Introduction: early repolarization (ER) in Brugada or short QT syndrome is common and has been associated with a less favourable outcome. Even if apparently paradoxical, ER can also be seen in long QT (LQT) but prevalence and correlations to other variables are unknown.

Methods: ECG of 105 LQT patients (44 men, 36±21 yo) and 269 age and gender matched controls (135 men, 36±18 yo) were reviewed. LQT was diagnosed by a positive genetic testing (n=71) or by showing abnormal T wave and long QT interval spontaneously or during epinephrin infusion in pts without discovered genetic mutation (n=34). ER was defined by > 1mm J point elevation in the inferior or lateral leads with notch or slurring pattern.

Results: QT in lead II was 433±68 msec in LQT patients and 338±41 in controls (p<0.0001) (QTC 446±52 versus 377±30 msec, p<0.0001). Heart rate was lower in LQT patients (66±14 vs 79±19 bpm) (p<0.0001). Twenty LQT patients presented with resuscitated sudden death or torsades de pointes and 11 with syncope.

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Arrhythmic risk stratification and prognostic value of programmed ventricular stimulation in arrhythmogenic right ventricular cardiomyopathy/dysplasia

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Background: The role of programmed ventricular stimulation (PVS) in arrhythmic risk stratification is unclear in patients with arrhythmogenic right ventricular cardiomyopathy/dysplasia (ARVC/D).

Objective: To determine clinical factors associated with inducibility of PVS and determine its prognostic value in the overall population and in three risk groups.

Methods: Between 2000 and 2010, 150 consecutive patients systematically benefited PVS at diagnosis. Predictors for PVS inducibility were studied. Risk factors for arrhythmic events were then determined by Cox regression in the entire population and in three risk groups.

Results: VT inducibility was significantly higher for males (p=0.007), symptomatic patients (p=0.001) especially those with syncope (p=0.004), patients who had spontaneous ventricular tachycardia (VT) (p<0.001) and right (p<0.001) or left (p=0.03) ventricular dysfunction.
After a follow up of 48±32 months, we recorded 31 ventricular arrhythmias and 10 sudden cardiac deaths (SCD). Male gender, symptoms, syncope, sustained VT, right or left ventricular dysfunction and positive PVS were associated with ventricular arrhythmias. PVS had a 50% of sensibility on predicting SCD. The presence of a history of an aborted SCD, syncope or non tolerated VT identified high-risk subjects whereas asymptomatic patients represented a low risk group whatever PVS results were. Inducibility at PVS was associated with a higher rate of events in the intermediate risk group. A decision tree based on our analyses is shown on figure 1 above.

Conclusion: PVS inducibility is associated with the occurrence of sustained ventricular arrhythmia but not with the occurrence of SCD. History of aborted SCD, syncope or non tolerated VT isolate a high risk group of patients whereas asymptomatic patients are at low risk. PVS seems to be interesting in the intermediate risk group for predicting ventricular arrhythmias.

Clinical interest of transesophageal electrophysiological study in patients with no documented tachycardia suspected of paroxysmal supraventricular tachycardia

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Paroxysmal supraventricular tachycardia (SVT) documentation is not always easy and in some patients referred for SVT ablation, EPS sometimes remains negative. The purpose of study was to evaluate the follow-up after esophageal EPS for no documented tachycardia.

Methods: 1569 patients, mean age 42±19.5 years, 637 males, with normal ECG in sinus rhythm, were suspected of SVT. Exercise testing, 24 hour Holter monitoring were normal. Transesophageal EPS consisted of programmed stimulation with 1 and 2 extrastimuli in control state and after isoproterenol.

Results: EPS remained negative in 594 patients (group I). Atrial fibrillation/tachycardia (AF) was induced in 70 patients (group II), atrioventricular (AV) nodal reentrant tachycardia (AVNRT) or AVRT using a concealed accessory pathway in 887 patients (group III). Group I was younger (34±17 years) than group II (53±16), III (46±20)(p<0.001). Group II was older than group III (p<0.001). Group I was more frequently of female gender (62%) than group II (56.5%)(no difference with group III)(67%). Group I had more frequently associated dizziness/syncope (41%) or chest pain (22%) than group II (20, 5%) or III (19, 6%)(p<0.001). Associated moderate heart disease was more frequent in group II (15%) than in group I (4.5%)(p<0.001) or III (8%)(p<0.003). During follow-up (mean 5±4 years), tachycardia was documented in 21 group I patients (3.5%)(AF 11, AVNRT/AVRT 8, ventricular tachycardia), 18 group II patients (20%)(p<0.0001)(AF), 370 group III patients (42%)(p<0.0001)(AVNRT/AVRT 361, AF 9). 2 group II patients (3%), 13 group III patients (7%) died (p<0.003). Ablation (AF or AVNRT/AVRT) was performed in 8 group I patients (1%), 10 group II patients (11%)(p<0.001), 348 group III patients (39%)(p<0.0001).

Conclusions: Prognosis value esophageal EPS was excellent. A negative study noted in younger patients complaining frequently of dizziness/syncope/chest pain predicted a favorable prognosis. None of the patients with induced AF had AVNRT/AVRT and this group (older, with HD) had frequently AF during follow-up (20%). Patients with induced AVNRT/AVRT benefit frequently from ablation of their tachycardia.

Telemonitoring for arrhythmias on rural outpatients: feasibility and results on 167 patients

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Purpose: Cardiac arrhythmias are undiagnosed because of their frequent transient and asymptomatic characteristic. This observational study on 167 patients assesses diagnosis and therapeutic advantages of electrocardiogram (ECG) remote monitoring on an at-risk population living in rural areas.

Methods: A total of 167 patients referred for evaluation of cardiac arrhythmia underwent simultaneous ECG ambulatory recording with a Holter