Background: The issue of risk stratification in Brugada syndrome is still unanswered.

Methods: In the Piemonte region registry, patients with Brugada sign at ECG were prospectively evaluated. EP study was performed in 78% of the patients. ICD was implanted in patients with previous cardiac arrest or induced sustained ventricular arrhythmies.

Results: 70 patients were included, 80% males, mean age 45±15 years, 75% symptomatic and 25% asymptomatic. Of the symptomatic patients, 49% had vasovagal syncope, 25% undetermined syncope, 16% paroxysmal palpitations and 10% cardiac arrest; sustained ventricular arrhythmias were induced in 45%: 42% in symptomatic patients and 3% in asymptomatic. Sustained ventricular arrhythmias were induced in 38% of the patients with vasovagal syncope, as compared to 100% of the patients with cardiac arrest (p=0.039) and to 72% of the patients with undetermined syncope (p=0.06, NS). None of the patients with paroxysmal palpitations was induced. Twenty-five patients underwent ICD implantation. At a mean follow-up of 36±30 months 3 out of 22 symptomatic patients received an appropriate ICD shock. No ICD shock occurred in asymptomatic patients.

Conclusion: EP study correctly identified the high risk patients. Vasovagal syncope does not imply per se good prognosis, while paroxysmal palpitations have not prognostic implications.

ABNORMAL QT DYNAMICS AND NOCTURNAL TEMPORAL QT DISPERSION IN BRUGADA SYNDROME

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In Brugada syndrome (BS), controversy exists about mechanism of ventricular arrhythmia and for risk stratification. In 41 patients with structurally normal hearts and ECG showing BS pattern, we assessed heart rate variability (HRV), temporal QT dispersion (QTSD) and QT dynamics on 24h ambulatory ECG. Type 1 BS pattern was present in 34/41 patients and type 2 in 7/41. The QT intervals were measured automatically with a Holter system. QT dynamics was assessed in relationship with QT/R-R slopes over 24h and during daytime and nighttime. History of syncope was present in 16/41 patients (39%). Late ventricular potentials were present in 21/41 patients (51%). Stimulation induced polymorphic ventricular tachycardia/atrial fibrillation in 12/41 (29%). Compared to a control group matched for sex and age, HRV was slightly decreased during nighttime in BS while all QT/R-R slopes were markedly decreased (24h: -32 %, daytime: -31%, nighttime: -40%, p range 0.0003 to <0.0001). QT/R-R slopes were similar between asymptomatic and symptomatic patients. By contrast, nighttime (NIGHT) QTSD was higher in symptomatic BS patients compared to asymptomatic ones (14.1±6.2 ms vs 9.9±2.0 ms, p=0.003). Conclusion: BS is associated with lower QT/R-R slopes. Moreover, high risk patients had an increased nocturnal QTSD. These unique repolarization dynamics may be related to the frequent occurrence of VF episodes at night.

BRUGADA-LIKE ECG FINDINGS DETECTED AFTER RESSECTION OF ESOPHAGEAL CANCER

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We have observed 3 cases of Brugada like ECG findings after the resection of esophageal cancer. Case 1, A 63 years-old woman, who has paroxysmal AF and esophageal cancer, received the same procedure as in case 1. His ECG revealed abnormal ST elevation in lead V\textsubscript{1}. This finally gradually reverted in ten days after operation and normalized within 2 weeks. Case 2, A 69 year-old male, who had atrial fibrillation (AF) was diagnosed as affected byesophageal cancer and underwent the resection of esophagus with subsequent reconstruction using stomach into retro-sternum. Post-operative ECG showed coved type ST elevation in lead V\textsubscript{1}. This finally gradually reverted in ten days after operation and normalized within 2 weeks. Case 3, A 68 years-old male who had atrial fibrillation the same operation as described above. His post-operative ECG showed Brugada like ST elevation in V\textsubscript{1}. This ST change disappeared within 3 weeks. In none of these 3 cases, there was a family history of sudden death or syncope, and the previous ECG showed no ST segment elevation. The compression of the RV by lifted stomach was considered to induce the precordial ST elevation mimicking Brugada syndrome.

FEMALE GENDER IS A RISK FACTOR FOR DRUG-INDUCED LONG QT AND EARLY AFTERDEPOLARIZATIONS (EADs) IN ANESTHETIZED DOGS


Clinical observations and experimental data in isolated rabbit and dog Purkinje fibers and in vivo in rabbits indicate that female gender is more sensitive to drug-induced long QT and cardiac arrhythmia. However, to-date there has been no demonstration of a gender difference in vivo in dogs and therefore male dogs tend to be the chosen sex for cardiovascular safety pharmacology tests. As such, this may potentially lead to wrong conclusions on the QT-related arrhythmogenic risk of a new chemical entity.

Methods and Results: We evaluated potential gender differences in the following variables, in neuromuscular blocked, mechanically ventilated anesthetized dogs: ventricular repolarization (ECG lead II, QT and QTc); right ventricular endocardial monophasic action potential (MAP), duration at 90% repolarization, APD\textsubscript{90} and APD\textsubscript{100}, spatial dispersion of the T wave (T-Tc), inhomogeneity of QTend/RR slopes (QT-Tc total instability). In each sex, 2 dogs were evaluated in control conditions and 2 dogs in response to doxepin administration (5 mg/kg IV over 10 min). At baseline, there was no statistically significant gender difference observed in the values of the various parameters, but doxetile infusion produced marked prolongation. Median maximum percentage changes of baseline in females versus males were respectively: heart rate (+3% / +6%, ns), QT (+23% / +14%, p = 0.003), QTcV (+20% / +15%, p < 0.03), APD\textsubscript{90} (+26% / +17%, p < 0.006), and APD\textsubscript{100} (+24% / +18%, p < 0.009). In addition, doxetile tended to differently increase Tp-Te (+40% / +23%, ns) and QT Tc (+150% / +104%, ns), more in female than in male animals.

Furthermore, doxetile infusion elicited more incidences of EADs on the MAP signal in female than in male dogs (73% vs 48%).

Conclusion: The present study confirms that female gender may be a risk factor for drug-induced long QT in the dog. Indeed, since significant alterations in additional markers beyond QT interval itself are more pronounced in female dogs and EADs occur more frequently in this sex, female dogs could be more sensitive to induction of polymorphic ventricular tachycardia (TdP). As such, consideration should be given to incorporation of female dogs into standard cardiovascular safety evaluations, or at least the chosen single sex for drug safety evaluation for the identification of QT/TdP related adverse effects.

ELECTROANATOMIC VOLTAGE MAPPING IN ARRHYTHMOGENIC RIGHT VENTRICULAR CARDIOMYOPATHY

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Background: Electroanatomic (EA) voltage mapping of the right ventricle (RV) by CARTO System has recently been proposed as a new diagnostic tool to identify dysplastic regions in patients affected with arrhythmogenic right ventricular cardiomyopathy (ARVC). Three-dimensional reconstruction of endocavitory electrodegram distribution, performed by CARTO System, would allow the identification of RV low voltage areas, reflecting fibrofatty myocardial replacement. The purpose of our study was to compare EA's voltage mapping during sinus rhythm with RV non-invasive assessment in ARVC patients.

Methods: We enrolled ten consecutive patients fulfilling standardized diagnostic criteria for ARVC (age range: 28-46 years, 5 males), with indication to electrophysiological test to evaluate ventricular electrical vulnerability or to validate an empirically selected antiarrhythmic treatment. After an integrated ECHO + MRI evaluation, an invasive EA reconstruction of RV was performed to identify dysplastic regions in patients affected with arrhythmogenic right ventricular cardiomyopathy. coloured by gender at 16 December 2018

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