Topic 05 – Rhythmic disease and stimulation

January 14th, Thursday 2010

192

Assessment of a relationship between functional and structural abnormalities in Brugada syndrome

Francois Rouzet (1), Samuel Burg (1), Vincent Algalarrondo (2), Pierre Nassar (1), Philipp Aouate (3), Robert Frank (4), Antoine Leenhardt (5), Michel Slama (2), Dominique Le Guludec (6)


Although Brugada syndrome (BrS) is a primarily electrical disease leading to conduction slowing, it is now acknowledged that structural alterations of the myocardium are frequently associated. Those two factors, may result in both contraction heterogeneity and remodeling of the right ventricle (RV). Radionuclide angiography (RNA) with phase analysis is able to quantify contraction delays and to evaluate volumes and systolic function of ventricles. The aim of this study was to assess both functional and structural alterations of the RV in patients with BS and to investigate a relationship between them.

Methods: Multiharmonic Fourier phase analysis of planar RNA was used to quantify contraction heterogeneity, and gated bloodpool SPECT to assess ventricular volumes and function in 71 patients with proven BrS [classified according to their spontaneous ECG pattern recorded just prior to ERNA as: concealed (n=26), type 2/3 (n=28), type 1 (n=17)] and 18 controls.

Results: RV contraction heterogeneity was greater in patients with BrS compared to controls (17.2±0.4° vs 15.1±0.7° respectively, p=0.007), and increased according to the repolarisation pattern from concealed forms to type 1 (ANOVA p=0.02). The increase of RV contraction heterogeneity was associated with an increased apex to RVOT contraction delay (r=0.4, p=0.006). RV end-diastolic and end-systolic volumes were greater in patients with BrS compared to controls (156±6 vs 134±7 ml, and 88±4 vs 73±4 ml respectively, p<0.02), to a similar proportion so as the ejection fraction was not significantly impaired (44±1% vs 45±2% respectively, p=0.4). Finally, there was no relationship between the magnitude of contraction heterogeneity and RV remodeling. The left ventricle was free of abnormality.

Conclusion: In patients with BrS, RV contraction heterogeneity increases with the magnitude of repolarisation abnormalities, contrary to RV remodeling which is present to a mild extent whatever the repolarisation pattern.

193

Mode and mechanisms of death after orthotopic heart transplantation

Nicolas Lellouche (1), Marmar Vasgehi (2), Harry Ritter (2), Jinghesh Patel (2), Jon Kobashigawa (2), Noel Boyle (2), Kalyanam Shikumar (2) (1) Hospital Henri Mondor, Federation de Cardiologie, Creteil, France – (2) UCLA Cardiac Arrhythmia Center, Los Angeles, Etats-Unis

Background: Ventricular fibrillation (VF) is the primary mechanism of cardiac arrest in the vast majority of sudden death patients. Whether similar modes and mechanisms of death can be generalized to denervated hearts in orthotopic heart transplantation (OHT) patients is unknown.

Objective: The purpose of this study was to determine the mode and mechanisms of death in patients who have undergone cardiac transplantation.

Methods: We analyzed the outcomes of 628 patients who underwent OHT between January 1994 and December 2004. The mode of death was classified as either sudden death (SD) or non-sudden death (NSD). The first documented rhythm taken at the time of arrest was also reviewed to determine the mechanism of cardiac arrest.

Results: During a mean follow-up of 76 months, 194 patients died. Of these, the mode of death could be determined in 116 patients (60%). Forty-one patients (35%) died of SD, and 75 patients (65%) died of NSD. The first documented rhythm of death was available in 91 patients (26 SD and 65 NSD). The terminal rhythms in patients who died suddenly were: asystole (34%), pulseless electrical activity (PEA) (20%), and VF (10%). In NSD patients, the terminal rhythms were asystole (73%), followed by VF (7%), and PEA (7%), and P<.001 compared with SD patients.

Conclusion: SD represented the mode of death in 35% of OHT patients. The main mechanisms underlying SD in this population were asystole and PEA, suggesting that denervation of the donor heart, among other post-transplantation changes, may alter susceptibility to VF.

194

Cardiac device-related infective endocarditis: microbiological specificities and prognostic factors

Sylvain Bodí, Christophe Camus, Pierre Tattevin, Erwan Donal, Philippe Mabo, Christophe Leclercq, Jean-Claude Daubert

CHU RENNES, Cardiologie, Rennes, France

Objective: Mono-centric observation of microbiological specificities and prognostic factors in cardiac device-related infective endocarditis (CDIE).

Methods: Review of 86 cases of certain CDIE gathered from 2000 to 2008, diagnosed on blood culture (77%) or lead tips culture (75%) and associated with evidence of vegetation on leads or on right heart endocardium.

Results: The infection was attributed to a coagulase-negative staphylococci (CNS) in 47% of the cohort; *Staphylococcus aureus* (SA) in 28%, the other gram-positive cocci in 13%, the gram-negative in 9% and gram-positive bacilli in 3%.

CNS was associated with less left cardiac valves septic localisations (p=0.013) and with a better survival as compared to the other germs (p=0.013). The multivariate analysis looking for predictive factors for 1-year mortality conclude to a positive correlation with:

- COPD (chronic obstructive pulmonary disease) (aOR, 1.23; 95% CI, 1.33 to 9.85; p<0.01),
- Infections to a “non-CNS” germ (aOR, 1.65; 95% CI, 1.50 to 18.22, p=0.009).

Kaplan Meier according to the germ

© Elsevier Masson SAS. All rights reserved.