Poster Session 3

Moderated Posters – Electrical external cardioversion of atrial fibrillation

526

Pacemaker - Endocarditis: experience with 88 patients, 190 leads

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Introduction: Continued growth in the elderly population and expanding indications have resulted in a progressive increase in the number of implants of pacemakers and defibrillators, including their complications, for example: endocarditis. Extraction of chronically implanted pacing and defibrillator leads has historically been difficult, occasionally requiring open surgical procedures. Our objective is to evaluate our experience with pacemakers/defibrillators endocarditis, and to describe their characteristics and therapeutic response.
Methods: Patients with an implanted pacemaker or defibrillator, showing up with fever were considered as potential endocarditis, until otherwise proven. Blood cultures, pocket cultures, if there were any sign of local infection or inflammation, and lead cultures, were obtained. Once cultures were ongoing, all patients received empirically IV Vancomicin plus Gentamicin, previous to lead extraction. This indication was modified, when appropriate, following blood cultures results. Treatment was maintained for at least 6 weeks. Switch to oral treatment after lead extraction, with at least 15 days of IV antibiotic treatment, was performed in absence of symptoms of active infectious disease.
Results: Lead extraction was performed with simple traction or locking stylets plus sheaths. From a total of 284 patients with 464 leads, (Endocarditis 40.9%, pocket infection 40.43%, lead malfunction 11%, recall 4.5%), 88 consecutive patients (57 men, 65%) with a mean age of 69 years (7-90) were treated due to pacemaker - endocarditis, 190 leads were extracted, median implant duration 37 months (1-354); 57 atrial leads, 121 ventricular leads, 11 ICD leads and 1 left ventricle lead. All patients underwent successful transvenous removal of endocardial leads. There were no major complications. Fifteen patients died (17%), 10 of them due to endocarditis (11.3%). Staphylococcus spp. was the predominant bacteria recovered.
Conclusion: This is the greatest series of pacemaker-endocarditis treated in Argentina. Our experience confirms that the interdisciplinary management associating appropriate antibiotics and lead extraction represents a safe strategy for pacemaker endocarditis.

527

A novel technique for direct His bundle pacing

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Right ventricular pacing is disadvantageous to left ventricular function. A pacing system that could preserve the normal Purkinje activation is desirable. Aim of our study was to assess the feasibility of direct His bundle pacing (DHBP) using a new system composed by a steerable catheter and a new 4.1 Fr. screw-in lead recently released in the European market.
19 patients (11 male, mean age 77 ± 8 years) affected by cardiomyopathy of any etiology (mean ejection fraction of 50 ± 12), narrow QRS, with PM indication were enrolled and DHBP was attempted.
In 17/19 patients the lead was implanted exactly on the His Bundle, while in 2 the Hissian area was achieved, but the paced QRS morphology and duration were different form the native ones. Pace-Ventricular intervals were similar to the His-Ventricular intervals (46.5 ± 9.8 ms vs. 49.9 ± 9.0 ms, p = NS) and in all patients, but two, the paced 12 lead EGC showed a QRS morphology and duration equal to the native one (102.1 ± 17 ms vs. 101.1 ± 18 ms, p = NS). The mean time for lead positioning was 26 ± 23 minutes, the mean fluoroscopy time was 18 ± 19 minutes and the total procedure time (skin to skin including the positioning of diagnostic quadripolar catheter for His recording) was 81 ± 31 minutes. In DHBP pacing, acute pacing threshold was 2.7 ± 1.3 V at a pulse width of 0.5 ms, whereas sensed potentials were 3.0 ± 2.1 mV. At one month follow-up the same QRS duration and morphology recorded at implant were observed in all patients, pacing threshold was 3.0 ± 1.8 V, with a ventricular sensing of 3.2 ± 2.0 mV, the sensing configuration was changed from bipolar to unipolar in five patients to solve undersensing issues. No major complications were observed.
In conclusions DHBP is feasible using a new system composed by a steerable catheter and a new screw-in lead in patients with narrow QRS and standard PM indications. Further studies are needed to evaluate the clinical impact of this technique.

528

High degree atrioventricular block during anti-arrhythmic drug treatment: pacemaker use with a bradycardia-detection algorithm to study the time course after drug withdrawal

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Background: it is difficult to interpret current guidelines for implantation of pacemakers for patients on antiarrhythmic drugs who develop symptomatic high degree atrioventricular block.
Methods: this study examines the time course of antiarrhythmic drug-induced high degree atrioventricular block after drug withdrawal. Nine men and eight women (77±7 years of age) were followed for two years with a bradycardia-detection algorithm downloaded into the memory of the Chorus RM (7034, ELA) pacemaker. The pacemaker stored marker chains with atrial and ventricular information from each bradyarrhythmia.
Results: at the time of admission, surface ECG identified four subset groups of patients: a normal QRS complex (five), right bundle branch block (two), intraventricular conduction delay (one), and bifascicular block (nine). For these groups, progression to high degree atrioventricular block were identified in 1/5, 1/2, 0/1, and 8/9 patients, respectively. Due to atrial tachyarrhythmias and drug therapy, pacemaker dependence in the groups were 4/5, 2/2, 1/1, and 9/9 patients, respectively. In 16 patients (94%) high degree atrioventricular block developed or atrial arrhythmias occurred that required antiarrhythmic drug treatment. These patients were considered pacemaker dependent.
Conclusion: Antiarrhythmic drugs provoke high degree atrioventricular block on a diseased conduction system and the reversal effect after drug withdrawal is only temporary. We recommend that a pacemaker should be implanted in patients who develop a high degree atrioventricular block even if antiarrhythmic drugs are used.