Aim: The aim of this study was to determine the impact of right heart dimensions on long-term atrial sensing stability (ASS) in VDD implanted patients (p). Methods: 47 pts with a single lead VDD system were implanted. Atrial sensing variability (ASV) was evaluated as the difference between the maximum and the minimum atrial electrogram amplitude at discharge, 6, 12 months follow-up in the supine and upright position. We analyzed the relation between ASV, right atrial dimention (RAD), and the distance from the roof of the right atrium to the right ventricular apex (RA-VD).

Results: Adequate atrial sensing >1mV was obtained in 46/47 pts. During follow-up programming in VVI-mode was necessary in 3 pts. In pts with RAD ≥35mm the ASV was significantly higher than those pts with RAD<35mm while in pts with RA-VD ≥92mm ASV significantly smaller than those pts with RA-VD<92mm. A number of 3 pts showed an atrial signal amplitude lower than 0.2mV at 1 year follow-up.

Conclusions: The amplitude of the atrial signal is stable indifferent of positions. High RAD and low RA-VD values may select P with poor ASS.

P-381 DEVELOPMENT OF ATRIAL TACHYARRHYTHMIAS IN PATIENTS WITH VDD PACEMAKERS

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Aim: We aimed to investigate the incidence of atrial tachyarrhythmias and its relationship with clinical characteristics in patients with VDD pacemakers.

Methods and Results: We retrospectively investigated the files of 126 patients (59 males and 67 females; aged 61±18) with pectoral single lead VDD pacemakers (Infermedics, n=75; Medtronic, n=28; Pacemaker, n=21; and Sorin, n=2) implanted between July 1994 and December 2002 in our institute. Median follow up time was 96±13 months. In 15 (12%) patients, atrial tachyarrhythmias (12 atrial fibrillation, 3 atrial flutter) developed during this time course. The association of patient characteristic and clinical demographics with atrial tachyarrhythmias was assessed. Left atrium diameter > 4 cm, age > 55 years, and presence of left ventricular dysfunction significantly (p=0.006, 0.03, 0.007; respectively), and presence of diabetes mellitus with a nearly significant level (p=0.05) associated with atrial tachyarrhythmia development according to Kaplan-Meier survival analysis. None of these factors were independent predictors of atrial tachyarrhythmia development with Cox multivariate regression analysis (p=0.9, 1.0, 0.1, and 0.3, respectively).

Conclusions: None of the patient clinical characteristics seems to be independent predictor of atrial tachyarrhythmia development in patients with VDD pacemakers.

P-382 PATTERNS OF AUTONOMIC ACTIVITY AFTER TERMINATION OF SHORT-TERM SINGLE-LEAD AND DUAL-CHAMBER PACING

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Purpose: To examine the autonomic effects of single- and dual-chamber pacing after termination of pacing, as reflected by indexes of heart rate variability (HRV).

Methods: The study group consisted of 25 patients (mean age 62±7 bpm) without organic heart disease and normal sinus node function implanted with a permanent dual-chamber DDD (n=16) or VDD (n=9) pacing system for intermittent atrioventricular (AV) block. Continuous overdrive pacing slightly above the intrinsic sinus rhythm for 15 minute was programmed to ensure permanent ventricular pacing in DDD and VDD modes. Components of frequency domain (low frequency-LF, high frequency-HF, and LF/HF ratio) and time domain (SDNN, rMSSD and pNN50) measures of HRV were calculated in 5-minute segments over a 30-minute period after cessation of each pacing mode.

Results: AAI pacing presented overall the lowest increases in LF/HF and highest pNN50 values. Following pacing cessation in DDDR mode, there were overall higher values of HF, rMSSD, pNN50, and SDNN, and lower LF/HF values compared with pacing in VDD mode. Following pacing termination of VVI mode there was an acceleration of the heart rate from 60.7±11.2 to 87.2±12.5 beats/min (p<0.01) and the most pronounced increases in LF and LF/HF and the lowest values of HF, rMSSD and pNN50 (figure).

Conclusions: AAI pacing seems to have the lesser effect on neural modulation. Both VDD and DDDR modes favor a shift of the autonomic balance toward sympathetic predominance. Asynchronous VVI pacing triggers relative sympathetic overactivity mainly due to vagal withdrawal.