



atrial synchronous ventricular pacing (VDD) and ventricular sensing and pacing (VVI) modes and elucidate its relationship with clinical, hemodynamic and electrophysiological variables.

Among 35 patients followed up in our pacemaker clinic with pacemakers implanted for CAVB 25 patients were assigned to VDD mode group and 10 patients to VVI mode group. Control group consists of 20 age and gender-matched patients with coronary artery disease and normal AV conduction. Patients of VDD pacing group did not differ by means of HRV from the Control group of patients, while patients of VVI group had significantly higher ($p < 0.05$) values of indices of sympathetic modulation (LFNU) and sympathovagal balance (LF/HF) ratio as compared with Control and VDD groups. Multiple regression analysis demonstrated that HRV indices did not correlate with age, EF, time from implantation of pacemaker but were significantly related with cardiac output and mean PR interval in patients with VDD mode of pacing.

Thus, atrial synchronous ventricular pacing normalizes autonomic control of heart rate in patients with CAVB being the same as in patients with normal AV conduction, possibly through preservation of the atrioventricular electrical and hemodynamic sequences, while VVI mode is characterized by higher response of the sinus node to sympathetic modulation. The predictive value of the latter finding needs elucidation.

P.2.9 VENTRICULAR PACING THRESHOLDS FOLLOWING HIGH-ENERGY VENTRICULAR DEFIBRILLATION SHOCKS

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Increased ventricular pacing thresholds have been observed following monophasic waveform shocks in implantable cardioverter defibrillators (icds). This study aimed to examine such changes following high-energy biphasic shocks in icds.

Method: Ten episodes of VF were induced every 10 minutes in 10 pigs (23.1±3.0 kg). After 10 seconds of VF a 40J biphasic shock (total 10 shocks) was delivered for successful defibrillation in the true-bipolar sensing lead system of the ICD. Ventricular bipolar pacing thresholds before and after these shocks were evaluated at one-minute intervals.

Results: The mean pacing threshold before shock delivered was 0.066 ± 0.059 uJ. Those of the first, second and third minutes after the first shock were 0.052 ± 0.061 uJ, 0.044 ± 0.039 uJ, respectively; showing that pacing thresholds gradually decreased.

Conclusion: It may not be necessary to pace at a high-voltage output after biphasic shocks in icds.

P.2.10 PACING THERAPY IMPROVES QUALITY OF LIFE IN AV CONDUCTION DISTURBANCES PATIENTS

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Purpose: To analyze qol parameters in patients with AV-conduction disturbances after implantation of VVI- and DDD-pacemakers during long-term follow-up.

Materials and methods: The study group consisted of 169 patients (19 women) in whom permanent pacemaker implantation had been implanted between January, 1996 and December, 2002. The mean age was 67.5±12.8 years. The duration of follow-up was 59.1±22.6 months. 29 patients with DDD-pacing were included in the subgroup A, whereas the subgroup B consisted of 140 VVI-patients. Short Form (MOS – SF – 36) was used to assess qol measurements.

Results: Patients with AV-conduction disturbances who received DDD-pacemaker had higher physical and mental component summary scores compared with the patients who received VVI-therapy. Patients with DDD-pacing had a higher exercise tolerance and experienced difficulties in professional and daily activity infrequently, keeping a higher capability of working compared with subgroup B patients. DDD-pacemaker therapy was followed by improved performance of social activity in the majority of the studied patients. Worsening of emotional role functioning was noted in VVI-patients.

Conclusion: The DDD-treatment was superior to VVI-pacing in improving qol parameters in patients with AV-conduction disturbances during long-term follow-up period.

P.2.11 INCIDENCE OF SUDDEN CARDIAC DEATH IN PATIENTS WITH CHRONIC ATRIAL FIBRILLATION AFTER VVI AND VVIR PACEMAKER IMPLANTATION

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Purpose: To estimate incidence of sudden cardiac death (SCD) in chronic atrial fibrillation patients (pts) undergoing VVI and VVIR-pacemaker implantation during a long-term follow-up period.

Materials and methods: The study group consisted of 74 pts (12 women), 73.1±10.1 years of age. In 55 cases pacemaker implantation was performed because of tachycardia-bradycardia syndrome and in 19 patients because of Frederic syndrome. The average follow-up was 78.1±23.9 months. Patients were divided in two subgroups. Fifty-six patients with VVI-pacing mode were included in the subgroup A, and 38 patients with VVIR-pacing mode in the subgroup B. Incidence of SCD was evaluated during a long-term follow-up.

Results: Patients of the subgroup A (VVI-pacing mode) had higher incidence of SCD compared with subgroup B patients (VVIR-pacing mode) during long-term follow-up. Three pts (10%) died suddenly in VVI-pacing group and there were no cases of SCD in VVIR-pacing group.

Conclusion: Rate-responsive pacing reduces SCD incidence in patients with chronic atrial fibrillation compared with VVI-paced patients during a long-term follow-up period.

P.2.12 INTERACTIONS BETWEEN IMPLANTED PACEMAKER AND AUTOMATED EXTERNAL DEFIBRILLATOR IN A PATIENT WITH OUT-OF-HOSPITAL VENTRICULAR FIBRILLATION

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Automated external defibrillator (AED) has been available for out-of-hospital ventricular fibrillation (VF). The algorithm of AED concerning VF was excellent in sensitivity and specificity. However, little information is available on the possible interactions between AED and implanted cardiac pacemaker. We report failure of AED due to impulse of pacemaker.

A 68-year-old woman was operated with mitral valvulotomy and replacement, and implantation of pacemaker (VVI) because of bradycardia. Testing of the pacemaker function showed normal resistance of the ventricular lead. She lost consciousness in a bus suddenly, bystander cardio-pulmonary resuscitation was done and an ambulance was called soon. When paramedics arrived at the scene, electrocardiogram showed combination with coarse VF (high amplitude) and impulse of pacemaker. AED did not work at the scene at all. After transfer to our hospital, she received advanced cardiac life support including defibrillation and drugs, and finally restoration of spontaneous circulation was obtained and the patient was carried to intensive care unit. Unfortunately, she later died because of hypoxic brain. We can conclude that a clear understanding of the possible interactions between AED and pacemaker is necessary for further refining the diagnostic algorithms of AED.

P.2.13 A SPECIAL TECHNIQUE FOR LEAD IMPLANTATION THROUGH CEPHALIC VEIN

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Cephalic vein (CV) approach is preferable to subclavian vein when technically feasible.

Aim: of the study was to describe a technique to extend the use of CV for lead implantation. This technique was applied every time the lead didn't proceed through the CV.

Methods: After the isolation of the CV as usual a Terumo straight wire was advanced under fluoroscopy control through the subclavian vein up to the right atrium. Then an appropriate-size dilator and sheath with a peel-away system was slipped over the wire. In case of dual-chamber pacemaker the wire was kept in place for the second lead.

Results: All patients (Pts) (77±8 years) were implanted with tined bipolar atrial and ventricular leads. Our technique was applied in 64 pts (9% single-lead VDD, 55% dual-chamber and 36% single-chamber). No complications were reported in these pts neither in acute nor at follow-up (1 and 3 months). The subclavian approach was used only in 11% pts, when both the standard cephalic approach and this technique failed.

Conclusion: Our technique is feasible in the majority of patients and always safe.

P.2.14 UNIQUE BI-V LEAD SETUPS FOR CLOSED-LOOP STIMULATION RATE ADAPTATION

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