HEMODYNAMICS OF ATRIAL CONTRACTION DURING LOW SEPTAL RIGHT ATRIAL PACING TO PREVENT ATRIAL FIBRILLATION RECURRENTS


Low septal (SE) right atrial pacing has been reported to decrease the atrial fibrillation burden, and its efficacy is thought to be related to anticipated left atrial contraction as well as increased homogeneity of atrial depolarization. The present study aimed to determine the exact timing of right and left atrial contractions, and to compare it during sinus rhythm and classical right atrial appendage (RAA) pacing or SE pacing.

Eighteen patients (pts) (10M/8F, 67 ± 8 y.) with class I or 2 pacemaker indication for sick sinus syndrome were studied. All pts were implanted with DDD pacemakers and 1488 Tendril screw-in atrial lead (St Jude Medical). We compared 9 pts with the atrial lead classically positioned in the RAA with 9 pts implanted in the SE region. Trans tricuspid (Tri) and trans mitral (Mi) flow were studied by transthoracic echo Doppler, and compared during sinus rhythm (AAT mode) and atrial pacing (AAI mode). After correction for real P wave onset in the AAT mode, the spike-base of A wave (SB) and spike-peak of A wave (SP) intervals were measured.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>SE (n=9)</th>
<th>RAA (n=9)</th>
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<tbody>
<tr>
<td>SB (msec)</td>
<td>41 ± 36</td>
<td>41 ± 36</td>
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<tr>
<td>SP (msec)</td>
<td>118 ± 20</td>
<td>118 ± 20</td>
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The results show that left atrial contraction is not significantly anticipated during SE pacing, while right atrial contraction is significantly delayed. In comparison with classical RAA pacing and despite the fact that the right to left sequence of atrial contraction was inverted by SE pacing, no absolute reduction of the spike-A wave interval was found.

A BL04 CONNECTION BETWEEN EFFICACY OF ATRIAL FIBRILLATION PREVENTIVE PACING ALGORITHMS AND ATRIAL PACING RATIO

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The purpose of the study was to evaluate efficacy of main pacing algorithms for prevention of atrial fibrillation (AF) atrial pacing ratio.

Methods. In 17 patients (13 male, 4 female), mean age 67±6.4 years with conventional pacing indications and documented paroxysmal AF implantation of DDDDR pacemakers (11 ELA, 6 Vitatron) were performed. AF prevention algorithms were activated on 3±7 day after operation and were adopted if necessary every follow-up visit according individual mechanisms of AF onset. Each patient was programmed and evaluated at least every 3 months during 11,516±8 month period. We compared magnitude of AF episodes/daily, AF episode duration, total AF burden (% of storage period), share of paced atrial rhythm in early (first 6 months after implantation) - phase A and late postoperational period (6-12th month after implantation) - phase B.

Results. In 6 cases during first 3 months radiofrequency AV junction ablation was performed because persistent AF paroxysms with poor tolerability. The number of AF episodes/daily during first 3-6 months did not differ significantly between both groups (3.9 ± 5.8 vs. 2.8 ± 2.3, p=0.25) as not the atrial pacing ratio (58.6 ± 39.3% vs. 63.7 ± 25.1%, p=0.15). Average AF episode duration (171,6±99,3 min vs. 105,2±74,4 min, p=0.05) and total AF burden (23,7 ± 19,0% vs. 9.2 ± 14,7%, p=0.01) significantly reduced in phase B after initial adaptation of AF-prevent algorithms. Symptomatic improvement was reported by all patients, no patient experienced pacemaker dysfunction.

Conclusion. AF episode duration and total AF burden can be significantly reduced by using preventive pacing algorithms in patients with paroxysmal AF as a result of overdrive pacing. However, increase of atrial pacing ratio hardly could be a criterion of properly selected AF-prevent algorithm. Therefore, further studies to determine precise recommendations for implementation of AF-prevent algorithms needed.

ABL05 SPINAL CORD STIMULATION FOR REFRACTORY STABLE ANGINA PECTORIS IN PATIENTS WITH CHRONIC PACEMAKER TREATMENT

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Spinal cord stimulation (SCS) is a safe treatment modality in patients with severe angina pectoris. We studied possible interactions of procedures in patients treated with both, SCS for angina pectoris and permanent pacemaker (PPM) treatment for bradyarrhythmias.

Methods used: Since January 2001, we performed SCS in 61 patients (pts.) (48 men, 13 women, age 65±8 years, bmi 27±9 kg/m²). Nine pts. additionally needed PPM treatment for bradyarrhythmias. All pts. had severe angina pectoris (III to IV [39/22] according to Canadian Cardiovascular Society) under considered medication due to angiographically documented end-stage coronary artery disease (CAD), which could not be treated interventionally. After 3 to 5 days of successful test stimulation using an epidural lead a commercially available implantable pulse generator is placed in a subcutaneous pouch below the costal arch.

Results: In 58 pts. (95%) angina pectoris could be reduced significantly. In 3 pts. the lead was removed because of ineffectivity during the test period. There was no interaction between neurostimulation and PPM treatment during follow-up of 1 to 38 (mean 20±12) months. DDD pacemaker were used in bipolar sensing mode: n=4 Medtronic, n=3 Biotronik, n=2 Guidant.

Conclusions: SCS has proved to be a safe procedure in patients with severe angina pectoris and PPM treatment with bipolar sensing mode.

ABL06 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) treatment. The algorithm of AED concerning to VF was excellent in sensitivity and specificity. However, little information is available on 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, and bystander cardiac-pulmonary resuscitation was done and call ambulance soon. When paramedics arrived at the scene, electrocardiogram showed combination with coarse VF (high amplitude) and impulse of pacemaker.

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