We have used for this implant, 5 leads from 2 different producers: 2187 (16 pts), 4189 (18 pts), 4191 (25 pts) and 4193 (15 pts) from Medtronic and 4512 for the positioning of the LV lead. We have made comparison in fluoro-time for each lead and dividing the 5 leads in two groups: stylet-guided leads (4191, 4193 and 4512).

We have not found any significant differences in fluoro-time nor for any of the considered leads neither for each group of leads.

We have also analysed if fluoro-time was related to single operator experience or to Centre experience.

We have found out that the longer the patient follow-up the longer the fluoro-time and the greater the number of patients implanted by the single operator the shorter the fluoro-time.

In conclusion, our data seem to demonstrate that all the leads available on the market have the same good handling and that – once the operator has gained a good experience in such an intervention – the mean fluoro-time required to position all the leads could be reduced to acceptable values.

**P-166 GUIDING AND OPTIMIZATION OF RESYNCHRONIZATION THERAPY WITH DYNAMIC THREE-DIMENSIONAL ECHOCARDIOGRAPHY AND SEMI-AUTOMATED BORDER DETECTION: A FEASIBILITY STUDY**


Objectives: To assess a new approach for guiding and hemodynamic optimization of resynchronization therapy, using three-dimensional (3D) transesophageal echocardiography.

Background: Resynchronization therapy for heart failure provides the greatest hemodynamic benefit when applied to the most delayed left ventricular (LV) site. Currently, the ideal LV pacing site is selected according to acute invasive hemodynamic assessment and/or tissue Doppler imaging.

Methods: A total of 11 patients with advanced heart failure and an implanted biventricular pacemaker were included in this study. Transesophageal apical LV images at equidistant intervals were obtained selecting a probe, fast rotating second harmonic transducer to reconstruct 3D LV datasets during sinus rhythm (SR), right ventricular (RV) apical and biventricular pacing mode. A semi-automated contour analysis system (4D LV analysis, TomTec, Germany) was used for segmental wall motion analysis and identification of the most delayed contracting segment and calculation of global LV function.

Results: Data acquisition duration was 10 sec. and analysable 3D images were obtained in 8 patients. Of these patients, data during SR were available in 5 and during biventricular pacing in 7. The greatest contraction delay during SR was found in anterior and anteroseptal segments in 3 of 5 patients. Biventricular pacing resulted in reduced contraction delay in 3 of 5 patients. The global LV function did not change significantly.

Conclusion: 3D echocardiography with appropriate analytic software allows detection of the most delayed LV contracting segment and can be used to select the optimal pacing site during resynchronization therapy.

**P-167 RATIONALE, DESIGN AND END-POINTS OF A CLINICAL STUDY ON BIVENTRICULAR PACING FOR ATIVOVENTRICULAR BLOCK IN LEFT VENTRICULAR DYSFUNCTION TO PREVENT CARDIAC DESYNCHRONISATION – THE BIOPACE STUDY**

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Cardiac asynchrony is increasingly accepted as pathogenic factor in the progression of heart failure (HF). Cardiac Resynchronisation Therapy (CRT) has shown encouraging effects on symptoms and left ventricular (LV) function. Recent data has even suggested prognostic benefit of CRT. On the other hand, patients with LV dilatation and dysfunction with indication for ventricular pacing due to atrioventricular block are still routinely implanted with right ventricular (RV) pacing devices inducing cardiac asynchrony. Considering the negative prognostic impact of left bundle branch block in the presence of LV dysfunction, the desynchronising effect of RV pacing could lead to progression of HF and thus deteriorate patients’ prognosis. The question remains whether these patients would benefit from biventricular (BV) pacing, especially in terms of prognostic improvement. The Bio Pace study has been designed to compare standard RV pacing to BV pacing in atrioventricular block, LV dilatation and dysfunction in order to prevent cardiac Desynchronisation. 1200 patients will be included in this parallel, prospective randomised single-blind international multicentre European trial. Inclusion criteria are any indication for permanent ventricular pacing in the presence of LV dilatation and LVEF < 45% and atrioventricular block or atrial fibrillation, regardless the spontaneous (implanted) QRS width. Prior to pacemaker implantation and after echocardiographic assessment patients will be randomised to RV versus BIV pacing systems (St. Jude Medical Inc.). Post implantation, patients will be followed up to 5 years. Primary endpoints are long-term survival and 2-year efficiency (MUMID® questionnaire and 6-minute walk test). Secondary endpoints are hospitalisation, LV dimensions, LVEF and adverse events.

Inclusion and exclusion criteria, study design, endpoints and the actual status of the study will be presented in detail.

**P-168 BNP IN BIVENTRICULAR PACING: ITS ASSOCIATION WITH FUNCTIONAL STATUS AND INFLAMMATORY MARKERS**


Objective: Plasma levels of N-pro-BNP and inflammatory activation have been associated with prognosis in heart failure (HF). Biventricular pacing (BivP) is a promising new therapy for HF management. In this study, we assessed the relation between changes in N-pro-BNP levels following BivP and patients’ (pts) functional improvement. We also assessed whether a relation exists between these levels and proinflammatory cytokine hyperactivation.

Methods: Thirteen pts with CHF, NYHA class II-IV were studied (mean age ± 1SE 65 ± 2 years, PR 195 ± 5 msec, QRS 192 ± 26 msec, LV EF 2 ± 2%). They were implanted a Biv defibrillator (n=11) or pacemaker (n=2). After a 3 month pacing period of 1 month following device implantation (VVI mode, 30 bpm), baseline evaluation was performed, including estimation of NYHA class, plasma levels of N-pro-BNP, tumor necrosis factor-alpha (TNF_a) and its soluble receptors (STNF-R1, STNF-RII). The same parameters were evaluated again (1) after 5 months of BivP (VDD mode, 30 bpm), (b) following a subsequent 3 month pacing period.

Results: After 5 months of BivP, an improvement was observed in NYHA class (1.6±0.1 following therapy vs 2.8±0.1 at baseline, p<0.05), sustained following pacing discontinuation (1.9±0.1, p value compared to baseline <0.05). The difference observed in pts’ functional class was related to the changes in N-pro-BNP (r=0.60, p=0.02). N-pro-BNP was related to the inflammatory markers assessed before pacing (r=0.51, p=0.01 for TNF_a, r=0.75, p=0.009 for STNF-R1 and r=0.72, p=0.01 for STNF-R2) as well as following 3 months of BivP therapy discontinuation (r=0.70, p=0.02 for TNF_a, r=0.62, p=0.04 for STNF-R1 and r=0.56, p=0.07 for STNF-R2) and after 3 months of therapy discontinuation (r=0.52, p=0.003 for TNF_a, r=0.77, p=0.02 for STNF-R1 and r=0.81, p=0.01 for STNF-R2).

Conclusions: The improvement observed in the functional capacity of pts with HF following BivP is associated with changes in N-pro-BNP plasma levels. N-pro-BNP is related to markers of inflammatory hyperactivation. N-pro-BNP may be a useful prognostic marker in HF.