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Long-term follow-up after alcohol septal ablation for hypertrophic obstructive cardiomyopathy in young adults

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Aim: To assess the long-term safety and efficacy of alcohol septal ablation (ASA) in young adults.

Methods: Data of 163 consecutive patients who underwent ASA at our institution from 2000 to 2010 were reviewed. Clinical follow-up was obtained at a mean of 3 years after ASA in patients aged between 18 and 40 years at the time of the procedure.

Results: During the study period, 21 patients (15 males) aged between 18 and 40 years old (mean age 33±5.6, range 18-39 years) underwent ASA. Among them, 76% were treated with beta-blockers, 33% calcium-channel antagonists and 5% disopyramide. There were 6 patients (29%) with prior pacemaker, 1 patient (5%) with history of sudden death and prior implantable cardioverter-defibrillator (ICD) and 1 patient (5%) with prior myocarditis. At baseline, mean New York Heart Association (NYHA) functional class was 2.4±0.5. Mean left ventricular outflow tract (LVOT) peak gradient and septal thickness were 89±37 mmHg and 24.9±5.1 mm, respectively. All procedures were performed with myocardial contrast echocardiography guidance. During ASA, 2.2±0.7 ml of absolute alcohol was injected in 1.4±0.5 septal perforators. Final procedural LVOT peak gradient was 20±16 mmHg. Procedural success (defined as immediate LVOT peak gradient reduction >50%) was achieved in 20 (95%). There were no major complications. One patient (5%) required a temporary pacemaker for second-degree atrioventricular block. Mean peak CK was 934±468 IU/L. At a mean follow-up of 3.0±2.0 years after the procedure (range 0.3-8.4), repeat ASA was performed with myocardial contrast echocardiography guidance. During ASA, 2.2±0.7 ml of absolute alcohol was injected in 1.4±0.5 septal perforators. Final procedural LVOT peak gradient was 20±16 mmHg. Procedural success (defined as immediate LVOT peak gradient reduction >50%) was achieved in 20 (95%). There were no major complications. One patient (5%) required a temporary pacemaker for second-degree atrioventricular block. Mean peak CK was 934±468 IU/L. At a mean follow-up of 3.0±2.0 years after the procedure (range 0.3-8.4), repeat ASA was performed in two patients (10%) and a new ICD was needed in 1 patient (5%), while there were no fatalities reported. Mean NYHA class was improved to 1.6±0.7.

Conclusion: ASA in young patients appears to be safe and effective. Immediate success is achieved in a large majority of patients and procedural complication rates are low. In addition, 3-year follow-up shows sustained clinical benefit with a low rate of adverse events.

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Link between tako tsubo cardiomyopathy and major anxiodepressive disorders: a prospective study

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Background: Tako-tsubo cardiomyopathies (TTC) are usually associated with emotional or physical stress as aetiological factors. Nonetheless, exposure to stress does not unconditionally lead to TTC development. We hypothesize that TTC may occur in a predisposed population.

Purpose: The aim of our prospective study was to define the prevalence of major anxiety troubles in a population of patients with TTC compared with a population of sex and age matched patients with acute coronary syndrome with troponin elevation (ACS).

Method: Between January 2010 and March 2011, 35 patients with TTC confirmed by coronary angiography, cardiac MRI and clinical evolution were prospectively enrolled in the psychiatric MINI test to research new or past major depressive episode (MDE), generalized anxiety trouble (GAT), posttraumatic stress disorder (PTSS) or dysthymia (DT). The same test was realized in a population of 30 matched patients with ACS.

Results: Mean age was 74 (65.8-82.5) years in the TTC group and 73 (70.2-80.2) in the ACS group (p = 0.484) with 11 % men in each group. There was no difference between TTC group and ACS group regarding cardiovascular risk factors. Among TTC 29 underwent finally the test (6 exclusion because of incapacity to understand the test), 16 (55.2%),11 (37.9%), 7 (24.2%), 3 (10.4%) and 1 (3.5%) patients had new MDE, past MDE, GAT, PTSS and DT respectively. Among the 30 patients with ACS 5 (16.6 %; p =0.005), 4 (13.3%; p=0.065), 2 (6.6%; p=0.074), 1 (3.3%; p=0.3) and 1 (3.3%; p=0.9) patient had new MDE, past MDE, TAG, PTSS and DT respectively. Major anxiety troubles were found in 19 (65.5%) patients in the TTC group versus 7 (23.3%) patients in the ACS group (p<0.005).

Conclusion: TTC are more frequently associated with major anxiety troubles and particularly new or past MDE. This association is not present for PTSS, GAT or DT. These findings suggest that TTC and depression may share common pathophysiological pathway.

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Peripartum cardiomyopathy (a series of 12 cases)

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Peripartum cardiomyopathy (PPCM) is frequent in Africa. It is characterized by heart failure in the last month of pregnancy or in the 5 months followings delivery. If the pathogenesis of the disease is still obscure the diagnostic has been greatly simplified by echocardiography showing typical appearance of hypokinetic cardiomyopathy, often didlated in a context of early heart failure occurred in the peripartum. However, manifestations of the disease are not unambiguous and changing parameters echocardiography has been little studied.

The aim of this work was to assess the echocardiographic abnormalities of the PPCM and to determine on 12 patients the evolution and the prognostic factors of this disease. The cases of peripartum cardiomyopathy treated from January 2008, to January 2011 in our service were reviewed. The abnormalities of the wall motion, constantly found, were diffuse in all patients and localized or prevalent on the interventricular septum or the left ventricular posterior wall in the other cases. The cardiac chambers were dilated in all patients. The left ventricular systolic dysfunction was constant. The other abnormalities were: restrictive mitral profile (6 patients) low mitral and aortic flow (3 cases), the mitral (10 cases) and tricuspid regurgitation (8). During follow up, all patients improved to Class I of NYHA, 2 patients improved their echocardiographic parameters and one patient died after a subsequent pregnancy.

The factors associated with the absence of normalization of the echocardiographic parameters were: the gestity, the parity, the cardiothoracic ratio, the delays (IACD) associated with a short left atrio-ventricular interval (LAVI) which occurs against the closing mitral valve.

In conclusion, symptoms improve over time in a significant number of patients, which is corroborated by improvement of the LV function as assessed by echocardiography. Certain variables at initial evaluation can help in identifying high risk subsets with peripartum cardiomyopathy.

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Effects of permanent left atrial pacing in patients with heart failure and preserved ejection fraction

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Background: Although numerous patients are suffering from heart failure with preserved ejection fraction (HFPEF), no specific treatments have been shown to be efficient so far. We hypothesized that inter-atral conduction delay (IACD) associated with a short left atrio-ventricular interval (LAVI) may impair left ventricular active filling as it reduces the left atrium “kick” which occurs against the closing mitral valve.

We assessed the clinical efficacy and safety of left atrial pacing therapy as a new treatment to restore the left ventricular active filling in these patients.

Methods: Six NYHA class III patients with severe HFPEF and no other cause for heart failure symptoms than a short LAVI with IACD were implanted with pacemakers for left atrial permanent stimulation via the coro-
nary sinus (lead screwed inside the Cs at 1 to 2 cm from the ostium). All patients were in sinus rhythm with an IACD defined as a p wave prolongation greater than 120ms in lead II, normal QRS interval. None of them had a standard indication for pacemaker implantation.

This double-blind, randomized, crossover study compared the responses of the patients during two periods: a two-week period of inactive pacing (ventricular inhibited pacing at a basic rate of 30 bpm) and a two-week period of active (left atrial permanent pacing). The primary end point was the distance walked in six minutes (6MWD). The secondary endpoint was the patient’s treatment preference.

Results: During the inactive phase, two patients developed an acute heart failure few hours after the pacemaker was turned off. The mean (±SD) distance walked in six minutes was 21 percent greater with active pacing (257±30 m vs. 187±18 m, P<0.001). Active pacing was preferred by 100 percent of the patients.

Conclusions: Although the beneficial effects of left atrial permanent pacing need to be confirmed by a larger study, this new pacing strategy may improve exercise tolerance in patients with HFpEF and short left atrio-ventricular interval.

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Misclassified out of proportion post-capillary pulmonary hypertension associated with heart failure and preserved ejection fraction
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Introduction: Out of proportion post-capillary pulmonary hypertension (resulting from left-sided heart failure, group 2 of the World Health Organisation of Pulmonary Hypertension (PH) classification) is a well known hemodynamic entity described in the past in mitral stenosis, but also concern patients with left-side heart failure and preserved ejection fraction (HPpEF). The prevalence is probably underestimated because a part of this population is addressed to the PH center and misdiagnosed group 1 PH classification.

Methods and results: From 2008 to 2011, we operated 1541 right heart catheterization and 454 were addressed form the PH center for evaluation. We identified 21 patients with out of proportion group 2 pulmonary hypertension and HPpEF. We determine the clinical, echographic and hemodynamic characteristics of these patients.

These patients are old (median =71 years, 67 to 77), more often female (15/21), with history of hypertension (20/21), mellitus diabetes (14/21), obesity (16/21), atrial fibrillation (13/21), renal dysfunction (12/21) and a high prevalence of cardiovascular events.

In echocardiography, the ejection fraction is preserved (EF>50%), the systolic pulmonary arterial pressure is elevated (median=64 mmHg) and the right chambers are dilated (14/21) with elevation of the end-diastolic left side pressure and enlargement of the left atrial.

The right heart catheterization revise the diagnosis, sometimes only after filling test when capillary pulmonary (Pcap) is close to 15 mmHg. The PAPd-Pcap gradient (<10 mmHg) is more relevant (100% in our population) than the classic trans-pulmonary gradient to guide to the diagnosis of group 2 PH.

Conclusion: There is concern that out of proportion post-capillary hypertension associated with HPpEF may often be misclassified as having WHO group 1 PH. The distinction is particularly important as therapies indicated in group 1 PH can be deleterious in group 2 PH.

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Heart failure with preserved ejection fraction – characteristics and prognosis – first results from the prospective KaRen study
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Background: Heart failure with preserved ejection fraction (HFpEF) is equally common as reduced EF, but clinical characteristics and prognosis remain incompletely defined. There are differences in HFpEF definition and prognosis in clinical trials versus epidemiological surveys.

Methods: The rationale for the multinational Karolinska-Rennes (KaRen) prospective observational study has been described. Patients presenting with acute heart failure (HF) were screened in 14 university hospitals. Inclusion criteria were: Framingham criteria for HF and left ventricular EF-45%and NT-proBNP > 300pg/ml. Once stabilized, 4-8 weeks after the index visit, patients were reevaluated and prospectively followed.

Results: Between 2007 and 2010, 478 patients were included. 42% were males. Female are older (78±9 vs 75±10, p=0.0009); faster (heart rate 87±55 vs 79±23, p=0.0001). Mean age was 77±16 years, body mass index 29±19 kg/m², left ventricular EF 56±14% (57±17 for female vs 55±17, p=0.001), and NT-proBNP decreased from 3958±4534 to 201±1949 pg/ml from inclusion to the 4-8 weeks visit (p<0.01), but 27% of the patients were still NYHA III to IV at second visit. Six-month mortality was 8%. Table I displays baseline characteristics.

Conclusion
In a prospective registry of HFpEF, patients are similar to that described in epidemiological studies, and mortality is similar to reduced EF. Patients are old, and remain symptomatic. Predictors of prognosis cause of death and targets of intervention will be presented.

Table I – Main results (abstract 099)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blood Pressure (mmHg)</td>
<td>149±41/77±24</td>
</tr>
<tr>
<td>Heart rate (bpm)</td>
<td>84±29/min</td>
</tr>
<tr>
<td>Hemoglobin (g/dl)</td>
<td>12.9±7.9</td>
</tr>
<tr>
<td>Creatinin (mmol/l)</td>
<td>109.7±62.2</td>
</tr>
<tr>
<td>GFR (ml/min)</td>
<td>61.9±30.5</td>
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<tr>
<td>NYHA class at acute HF visit</td>
<td>49% IV–IV–I–II</td>
</tr>
<tr>
<td>NYHA class before acute HF</td>
<td>80%</td>
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<tr>
<td>History of atrial arrhythmia</td>
<td>60%</td>
</tr>
<tr>
<td>Stroke</td>
<td>10.5%</td>
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<tr>
<td>Diabetes</td>
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