**Topic 02 – Heart failure and cardiomyopathy**

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**0148**

Intramyocardial transplantation of mesenchymal stromal cells for chronic myocardial ischemia and decreased left ventricular function: 1-year results of the MESAMI phase I clinical trial

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Our aim was to investigate the safety and feasibility of transendocardial injections guided by 3-dimensional NogaStar XP mapping of autologous bone marrow-derived mesenchymal stromal cells (MSC) in patients with chronic myocardial ischemia and left ventricular dysfunction.

The MESAMI I trial is a bicentric phase 1 study, including 10 patients with chronic myocardial ischemia. The inclusion criteria were: NYHA Class II-IV and/or angina pectoris CCS Class III or IV, chronic ischemic cardiomyopathy with LVEF ≤35%, optimal medical and revascularization therapies, and reversible perfusion defect by SPECT. Bone marrow was obtained by aspiration from the iliac crest and MSC were expanded in culture for 17 days. Transendocardial injections (n=14-16) of autologous bone marrow MSC were made into viable muscle in border zones of left ventricular scar. Bone marrow volume was 16.8±2.0ml, and patients received 61.5*10^6 MSC. After 1-month follow-up (FU), the primary end-point of safety and feasibility was met since all patients tolerated the procedure with no adverse events due to the procedure and the cell therapy product. Secondary endpoints between baseline and 3-month FU showed a significant decrease of summed stress score measured by SPECT from 34.1±8 to 25.3±9.5 (p<0.05). This effect was not maintained at 12 months (32.1±8.0, NS). The echocardiographic LVEF improved significantly of more than 6% from 29.4±6.5% to 35.9±6.7% (p<0.001) at 3 months follow-up of 2.9±3 years, 79 deaths occurred (53%). The presence of LVT was significantly associated with reduced 1 and 5-year survival: 51±4% vs. 70±4% and 32±7% vs. 64±6% respectively (p=0.0002).

**Abstract 0224 – Figure: 5-year survival of AL-patients according to LVT**

**0224**

Prevalence and prognostic significance of left-sided valvular thickening in patients with systemic light-chain amyloidosis

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**Background:** Cardiac involvement is frequent in systemic light chain amyloidosis (AL). Left-sided valvular thickening (LVT) have been described in AL reflecting heavy infiltration of the valvar endocardium by amyloid proteins. However, the exact prevalence at diagnosis and the prognostic significance of LVT in AL patients have never been investigated.

**Aims:** to study the prevalence and the impact on long-term survival LVT in AL patients.

**Methods and results:** Between 1998 and 2013, 150 AL patients were included at diagnosis (mean age was 68±11 ans, 59% were male). A comprehensive transthoracic echocardiography was performed at baseline. The presence of LVT was assessed visually and was found in 42% of patients. Compared to patients without LVT, those with LVT have more frequently advanced NYHA functional class. They also had significantly higher left ventricular (LV) wall thickening (p=0.01), LV mass (p=0.02), and mitral E/e’ (p=0.0009) and larger left atrial size (p=0.0001). Moreover, patients with advanced Mayo Clinic stage more frequently had LV: 58%, 45%, and 5% in stage III, II, and I respectively (p=0.0001). Patients with severe symptoms more frequently exhibited LVT (63% in NYHA III-IV vs. 33% in NYHA I-II, p=0.0008). During a mean follow-up of 2.9±3 years, 79 deaths occurred (53%). The presence of LVT was significantly associated with reduced 1 and 5-year survival: 51±4% vs. 70±4% and 32±7% vs. 64±6% respectively (p=0.0002). In multivariate analysis, after adjustment for age, gender, NYHA class, clearance of creatininemia, and LV ejection fraction, LVT remained an independent significant marker of mortality (Hazard ratio=1.9, 95%CI: 1.10-3.34, p=0.02).

**Conclusion:** The presence of LVT is a common finding in patients with AL and is associated with impaired both LV systolic and diastolic function, poorer functional status and advanced stage of the disease. In addition, LVT appeared as a powerful marker of mortality.
second to hypertensive heart disease (HLVH) using 2D speckle tracking imaging.

Methods: 2D fort chamber long-axis and basal, middle, and apical short-axis of LV images were acquired in 97 patients with LVH including 67 with HCM and 30 with HLVH, and in 30 age-matched controls. Radial strain, longitudinal strain, time interval from the R-wave to peak radial strain (Trs), and time to peak longitudinal strain (Tls) were calculated. The standard deviation (SD) of Tls was calculated.

Results: Regional radial strain in the middle and apical short-axis segments was significantly less in patients with HCM than in those with HHD (56 ± 23 VS 45 ± 21 and 47 ± 19 VS 38 ± 17 respectively, p < 0.01). Regional longitudinal basal strain was also less in HCM (−13 ± 3.3% VS −17 ± 2.9%, p < 0.002). Trs-18SD and Tls were significantly longer in patients with HCM than in age-matched controls and patients with HLVH (Trs-18SD: HCM: 68 ± 22ms, HHD: 51 ± 11ms, control: 15 ± 12ms P < 0.001; Tls: HCM: 7 ± 12ms, HHD: 44 ± 11ms, control: 33 ± 3ms P < 0.001).

Conclusions: The presence of LVH is thus not always associated with LV dysfunction. However, the greater reduction of regional strain and severe LV dysynchrony in HCM may contribute to the adverse cardiovascular outcomes associated with this disease.

0380
Cardiac tolerance of bevacizumab associated with trastuzumab and conventional treatment in patients with primary inflammatory HER2-positive breast cancer
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Background: Breast cancer is the most frequent female cancer. Treatment of HER2+ tumours evolved with immunotherapy, leading to improved survival. Cardiac toxicity associated to trastuzumab is frequent but reversible in 75% of cases. However, only little is known about the cardiotoxicity of new anti-VEGF antibodies associated to trastuzumab. In this study, we aimed to assess the cardiac tolerance of bevacizumab associated with trastuzumab and chemotherapy in HER2+ breast cancer patients.

Methods and results: This is a post-hoc analysis of the BEVERLY-2 study, aiming to assess the efficacy of neoadjuvant bevacizumab, trastuzumab, and chemotherapy for primary inflammatory HER2+ breast cancer. A cohort of 52 patients was prospectively included. Left ventricular ejection fraction (LVEF) was assessed by echocardiography and/or isotopic ventriculography every three months during the mean follow-up of 33 ± 3.42 months. Mean age prior to chemotherapy was 49.75 years ± 1.1. On inclusion, mean LVEF was 66.56 ± 6.13. There was no significant difference between LVEF on inclusion and before the 5th cycle of chemotherapy fifth cycle (C5) (66.56 ± 6.13 vs 65.11 ± 7.68; p = 0.24), whereas LVEF was significantly reduced at the end of the neoadjuvant therapy (62.07% ± 7.84 vs 66.56 ± 6.13; p = 0.0001). The nadir of LVEF was 57.87% ± 8.79 and occurred generally during the adjuvant period. In 16 patients, LVEF decreased below 50% after neoadjuvant therapy but complete recovery of LVEF was observed in all at the end of the follow-up, 3 months after the end of the treatment (Figure 1, next page).

Conclusion: In this study, with an effective treatment protocol for inflammatory breast cancer, reduction in LVEF was observed in 30% of patients, however, it was reversible in all. Nadir of LVEF was observed after the final adjuvant therapy (31%). This timing and the possibility of recovery should be considered when discussing the interruption of chemotherapy because of reduced LVEF during the follow up.

0531
Long-term experience with heart transplantation in children and patients with congenital heart disease
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This study assessed the long-term outcome of heart (HTx) and heart-lung transplantation (HLTx) in patients with congenital heart disease (CHD) and children with non-congenital cardiac or pulmonary disease.

Methods: Retrospective single-centre analysis of long-term posttransplant outcome, with chart collection of clinical and paraclinical data.

Results: From 1984 to 2013, 111 first-HTx, 5 HLTx and 6 re-HTx were performed (62 males), in patients aged 17 ± 8.2y; 96 (79%) aged < 18y. Cardiopathy included 61 cardiomyopathies (50.8%), 50 CHD (41.7%), 6 re-transplants (5%), HLTx included 1 Eisenmenger, 1 PPHT, and 2 pulmonary diseases. Patients with cardiomyopathy were younger than CHD (8.7y vs 14.9y). Seventeen (14%) patients had circulatory mechanical support as bridge to transplant. Acute rejection occurred more frequently within the first year post-transplant or > 5thyear in non-compliant teenagers. Overall 33 patients died (27%), 3.5 ± 4.6y postTx (1 day