(15%) during the follow-up generally from cardiac and respiratory failure. 7 of them had AF (29%) and 14 had no AF (10.5%) (p< 0.01). Univariate analysis indicated that age greater than 40 years (death: 51±14 vs 40±14 in alive patients), ECG, occurrence of sustained AF or flutter and LVEF less than 45% were significant predictive factors of death. At multivariate analysis AF at ECG (relative risk RR 6.72) was independent predictor of death.

Conclusions: Atrial flutter and atrial fibrillation are frequent in MD and are associated with increasing mortality. Atrial flutter may present as a 1/1 atrial flutter (25%) with a poor tolerance and a risk of misdiagnostis.

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Application of Next Generation Sequencing (NGS) technologies to the molecular diagnosis of inherited cardiac diseases.

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Introduction: Inherited cardiomyopathies and arrhythmias are autosomal dominant diseases with an important genetic heterogeneity. Their overall prevalence, associated with the risk of sudden death, stress the need for high throughput and sensitive genetic diagnosis in order to improve genetic counseling and medical management. We evaluated the strength of Next Generation Sequencing (NGS) technologies to fulfill these criteria through simultaneous sequencing of the major known causative genes described as responsible for these phenotypes.

Methods: We designed a custom target capture system (Agilent) of 64 genes followed by high-throughput sequencing on HiSeq2000 (Illumina). Ten DNAs with mutations (in MYH7, MYBPC3, LMNA, FHL1, SCN5A, KCNH2, KCNQ1, DSG2, DSP and PKP2 genes) were included as control. Validation was done by evaluating capture efficiency, coverage deep, sequencing sensitivity and reproducibility.

Results: More than 90% of targeted sequences were fully covered (> 50X). After variants filtering, each DNA sample presented ~20 variations. Variants were classified according to multiple criteria such as allelic frequency, mutation type and functional effects. All 10 control mutations were identified. However 2 to 4 additional potential pathogenic variants were found in each individual.

Conclusion: NGS based diagnostic is reliable in cardiac disorders. This technique should allow a sensitive, comprehensive, cost-effective and rapid molecular diagnosis of patients. However, our results underlined the complexity of the genetic profile of patients that should be taken into account into clinical practice.

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Heart failure in native valve infective endocarditis: characteristics, prognosis, and results of surgical treatment

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Background: Although congestive heart failure (CHF) represents the most common cause of death in native valve infective endocarditis (IE), recent data on the outcome of IE complicated by CHF are lacking.

Objective: We aimed to analyse the characteristics and prognosis of patients with left-sided native valve IE complicated by CHF and to evaluate the impact of early surgery on 1 year outcome.

Methods and results: Two hundred and twenty consecutive patients with definite left-sided native valve IE according to the Duke criteria were included in this analysis. When compared with patients without CHF (n=144), new heart murmur, high comorbidity index, aortic valve IE, and severe valve regurgitation were more frequently observed in CHF patients (n=76, 34.5%). Aortic valve IE, elderly patients were more frequent in CHF patients. Congestive heart failure was independently predictive of in-hospital [OR 3.8 (1.7-9.0); P=0.0013] and 1 year mortality [HR 1.8 (1.1-3.0); P=0.007]. Early surgery was performed in 63% of CHF patients with a peri-operative mortality of 15%. In the CHF group, comorbidity index, anemia, uncontrolled infection, and major neurological events were multivariate predictors of 1 year mortality. Early surgery was independently associated with improved 1 year survival [HR 0.45 (0.22-0.93); P=0.03].

Conclusion: Native valve IE complicated by CHF is more frequent in aortic IE and is associated with severe regurgitation. Congestive heart failure is an independent predictor of in-hospital and 1 year mortality. In CHF patients, early surgery is independently associated with reduced mortality and should be widely considered to improve outcome.

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Long-term outcomes after heart transplantation for Emery-Dreifuss muscular dystrophy

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Background: Emery-Dreifuss muscular dystrophy (EDMD) is an hereditary syndrome related to mutations in lamin A/C gene (LMNA) and is characterised by severe dilated cardiomyopathy, mostly slight peripheral muscular dystrophy, supra-ventricular arrhythmia and atrio-ventricular (AV) block. Transplantation for EDMD is rarely reported in the ISHLT registry. We aim to study outcomes after heart transplantation (HTx) for end-stage heart failure in twelve EDMD patients.

Methods: 12 cases of HTx performed for EDMD confirmed by genetic analysis in a single institution between 1997 and 2011 were compared to 12 patients age, sex and year of transplantation matched. Survival curves were analysed by Kaplan-Meier method.

Results: Before transplantation, EDMD patients had similar age (56 vs 57 yo, p=0,81), sex ratio (42% male), pre-transplantation NYHA functional class III (p=0,207), left ventricular ejection fraction (LVEF=33% vs 32%, p=0,89), higher rate of supra-ventricular arrythmia (100% vs 45%, p=0,002) and AV block (58% vs 12.5%, p=0,042) compared to non-EDMD. After HTx, NYHA functional class was similar (I, p=1,00), LVEF (72+/-5,91% vs 69+/-11,3%, p=0,49), rejection rate (19+/-3,8% vs 40+/-8,2% by year, p=0,45), infection rate (14% vs 6% by year, p=0,087), renal function (eGFR=89+/-49 vs 66+/-37 ml/min, p=0,22) were similar after HTx in EDMD and non-EDMD group. Survival rate at 1 year, 2 years, 5 years were not significantly different (respectively 91.6%, 90.9%, 81.5% versus 100%, 100%, 100% p=0,146). 42% EDMD patients had slight muscular dysfunction, compatible with good quality of life.

Conclusion: Despite reluctance for heart transplantation in end-stage HF patients with EDMD, long term outcomes are similar to non EDMD patients at 1,2 and 5-year follow-up in our institution.

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The effect of diabetes on left ventricular diastolic function

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Objective: to study left ventricular function in normotensive and low risk diabetic patients.