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Infective endocarditis in women: clinical characteristics and outcome

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The influence of sex on the prevalence of certain forms of valvular heart disease was known. Although the clinical characteristics and prognosis of infective endocarditis (IE) have been widely studied, little information was available concerning the possible differences between men and women.

The aim of this study was to assess the clinical Characteristics and the Prognosis of Infective Endocarditis in Women.

Methods: Comparative analysis of 220 patients diagnosed with IE according to the Duke University criteria between 1997 and 2007. Of these 95 (42.7%) were women.

Results: Mean age was similar in the 2 sexes, 34.8 ± 18 years for men and 37.2 ± 18 years for women. Infection occurred more frequently in the mitral valve in women (62% vs 43% p = 0.03) and more frequently in the aortic valve in men (36.3% vs 20.2%, p=0.05). The incidence of IE on prosthesis was similar in both groups: 22.8% in men and 23.3% in the women (p=0.8).

The rate of positive blood cultures was similar in both groups (52.2% in men and 51% in women, p = 0.9) and no significant differences were found regarding the causative pathogen.

The rates of heart failure, peripheral emboli, abscesses and neurologic complications were all similar in the 2 groups. Concerning surgical treatment, women had more frequently mitral valve replacement (29.3% vs 20.8%, p = 0.05), and men had more frequently aortic or mitro-aortic valve prothesis (23.8% vs 9.8%, p<0.001, and 4% vs 1.2%, p<0.05). Death during the hospital phase was similar: 20.2% for women and 18.1% for men (p=0.7).

Conclusion: Despite the differences in the valvular localisation of IE between men and women, it seems that the clinical characteristics and the prognosis of infective endocarditis were similar.

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Infectious endocarditis characteristics about 94 cases hospitalized in Cardiology Unit of Beni Messous University hospital in Algeriers

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Background: Infectious endocarditis (IE) epidemiologic profile changes in time.

Objective: To describe the IE characteristics.

Setting: Cardiology Unit Beni Messous University Hospital West Algiers...

Material and methods: Retrospective study based on hospitalization files, between 1996 and 2008, including patients corresponding to IE diagnosis.

Results: 94 patients included, 36.1 ± 11.6 years old, with a sex ratio of 1.85. IE occurred on apparently healthy heart, on prosthetic valves and on predisposing cardiac disorders in respectively 10.6%, 17.0% and 72.3% of cases. Among the underlying cardiac disorders, the rheumatic fever valvulopathy occupy the first rank : 45 cases (66.2%). A predisposing extracardiac factor was known in respectively 33.3, 29.2 and 22.9% of cases. Complications occurred in 66 patients (71.3%), the most frequent being cardiac failure (57.6%), kidney failure (33.3%), ischemic cerebral vascular accident (31.8%) and persistant fever (15.1%). Among 84 operatory indications, surgery carried out during hospitalization in only 41 patients (48.8%). Hospital mortality was 38.3%. Hospital mortality factors were cerebral vascular accident (p < 0.0001), cardiac failure (p < 0.0001) and gram negative bacillus IE (p = 0.03).

Conclusion: In this study, the IE epidemiologic profile presents wide differences with the profile reported at the present time in industrialized countries.

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Specificity of Left Ventricular Response to Exercise in Patients with Asymptomatic Valvular Aortic Stenosis

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Objective: To determine whether left ventricular systolic and/or diastolic functions during an exercise stress echocardiography can identify early left ventricular (LV) dysfunction in asymptomatic patients with severe aortic stenosis (AoS).

Methods: a bicentric case–control study was performed about 207 patients with AoS, without symptoms, a peak aortic valve velocity 3 m/s, and LV ejection fraction (EF) >50% and 43 aged-matched normal controls. An echocardiogram was performed at rest and during a standardized exercise stress test. Tissue Doppler, 2D-strain as well as conventional echocardiography was identically performed for every patient at rest and during an exercise at 120±10 beats/min.

Results: For patients with AoS, mean (SD) aortic valve area was 0.87 (0.19) cm². At rest, LVEF was similar for patients with AoS and controls, respectively (65.6 (9.1) vs 63.3 (6.6) %, p = 0.1). However, S′ (tissue Doppler systolic peak) (6.2 (2.3) vs 7.7 (1.2) cm/s, p<0.001) and the increase in S′ during exercise (7.5 (2.6) vs 11.6 (1.3) cm/s, p<0.001) were lower in patients with AoS. The difference was even greater considering global longitudinal systolic strain (GLS) at rest (-15.4 (4.0) vs -20.2 (2.7)) and during exercise (-16.5 (4.9) vs -24.6 (3.5)). The best discriminant parameter between the 2 populations was the exercise GLS with a cut-off of -21.9 providing 83.7% specificity and 89.8% sensitivity.

Conclusion: In patients with similar LV EF, LV longitudinal deformation measured by 2D-S is providing at rest and even more exercising a clinically relevant tool to distinguish subclinical LV dysfunction induced by the chonic overload due to severe AoS.

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Percutaneous mitral dilatation in pregnant women: about nine cases

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Immediate impact of successful percutaneous mitral valve commissurotomy on right ventricular function

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Aims: Mitral stenosis (MS) affects right ventricular (RV) function as a result of myocardial and haemodynamic factors. Although the long-term effects of mitral commissurotomy are well known, the aim of this study was to evaluate the immediate impact of percutaneous mitral commissurotomy (PTMC) on RV function in patients with MS.

Methods and results: Twelve female patients (mean age 29±7 years) with isolated rheumatic MS, all in sinus rhythm, were studied before and 24–48 h after PTMC. Multiple parameters of global and longitudinal RV function were

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Complications of treatment or interventions. Immediately following PTMC, mitral valve area increased from 0.91±0.29 cm² to 1.86±0.43 cm² (P < 0.0001) and RV outflow tract fractional shortening (RVOTfs) increased from 57±15% to 72±12% (P ¼ 0.0002). There was a significant decrease in systolic pulmonary artery pressure from 46.4±32 mmHg to 29.1±13 mmHg (P ¼ 0.02), in the RV Tei index from 0.44±0.025 to 0.29±0.17 (P ¼ 0.021), in myocardial acceleration during isovolumic contraction (IVA) at the lateral tricuspid annulus from 0.36±0.11 m/s² to 0.25±0.07 m/s² (P ¼ 0.023), and in isovolumic contraction velocities at the lateral tricuspid annulus from 11.03±3.37 cm/s to 8.50±2.04 cm/s (P ¼ 0.034). Conclusion: Immediately after successful PTMC, significant decrease in RV contractility as assessed by IVA was observed whereas other parameters of infundibular and global RV function as assessed by RVOTfs and Tei index showed significant improvement. These discordant results may be related to the relative insensitivity of currently available echocardiography parameters of RV function that are not completely immune to loading conditions.

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Prognosis of infective endocarditis : EIMONA Registry

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Despite the major advances in diagnostic technology, improvements in antimicrobial selection, and advances in surgical techniques, infective endocarditis remains a disease with high mortality rate, nearly 20%.

Aim: To determine predictive factors of mortality of infective endocarditis.

Methods: EIMONA registry includes 220 patients diagnosed with IE according to the Duke University criteria between 1997 and 2007 (125 Men, mean age 36 ± 17 years).

Results: In-hospital mortality was 18% (41 patients). Endocarditis patients who died were significantly older (51 ± 9 years vs 28 ± 14, p = 0.023), and had more frequently symptoms of heart failure (57.2% vs 26.5%, p < 0.01). Biologics and echocardiographic characteristics were similar, except for serum creatinine (129.5 ± 24 versus 86.5 ± 30, P = 0.07).

Univariate analysis on potential risk factors revealed three significant factors: renal failure, embolic accident and heart failure. These same factors were also independent factors for death in multivariate analysis, with OR = 3.2 (95% CI: 1.1-9.6, p=0.03) for renal failure, OR=2.3 (95% CI: 1.1-5, p=0.03) for embolic accidents and OR=4 (95% CI: 1.6-9.8, p = 0.002) for heart failure.

Conclusion: Infective endocarditis was a complex disease with poor prognosis; our findings may help to identify higher-risk patients for more aggressive treatment or interventions.

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Comprehensive annular and subvalvular repair of chronic ischemic MR provides best long-term results with least ventricular remodeling

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Background: In ischemic mitral regurgitation (IMR), leaflet tethering is caused by post-MI LV and annular remodeling. Severe second-order mitral chordae significantly decreases tethering and MR. We tested whether under-sized ring annuloplasty can improve chordal cutting efficacy by reducing annulus-related tethering.

Methods: Posterolateral MI created chronic remodeling and MR in 28 sheep. At 3 months, sheep were randomized to sham surgery vs isolated anuloplasty undersized by 2 sizes vs isolated bileaflet chordal cutting vs at the combined therapy (n=7 each). At baseline, chronic MI (3 months) and sacrifice (6.6 months) we measured LV volumes and ejection fraction (EF), wall motion score index (WMSI), MR Regurgitation fraction (MRRF) and vena contracta (VC), Mitral annulus area (MAA) and posterior leaflet (PL) restriction angle (PL to MAA) by 2D and 3D echo.

Results: All groups were comparable at baseline and chronic MI, with mild- moderate MR (MRRV 4.6±1.0mm, MRRF 24±2.6%) and MA dilatation (p=0.01). At sacrifice, LV end-systolic volume (ESV) increased by 108 % in controls vs 28% with ring + chordal cutting, less than with each intervention alone (p=0.01). Also, MR progressed to moderate-severe in controls but decreased to trace with ring + chordal cutting vs mild-moderate with ring alone and trace-mild with chordal cutting alone (MRRV 5.9±1.1 mm in controls, 2.0±0.7 with ring, 1.0±0.9 with chordal cutting, 0.5±0.8 with both, p<0.01). Ring alone did not improve PL mobility, but chordal cutting did alone or with ring (PL restriction angle 54±5° vs. 45±2.3° with ring, p=NS). In multivariate analysis, LVESV and MAA most strongly predicted MR (r²=0.82, p<0.01). Conclusions: Comprehensive annular and subvalvular repair provides the most effective long-term reduction of both chronic ischemic MR and LV remodeling.

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Investigation of the myxomatous mitral valve prolapse locus on chromosome 16

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Myxomatous mitral valve prolapse (MMVP), also called Barlow disease, is a common cardiac disorder characterized by fibromyxomatous changes in the mitral leaflet tissue causing prolapse. Familial studies suggest a genetic heterogeneity and four loci have been identified to date. The MMVP1 locus that we identified in the past in two French families (Disse, Am J Hum Genet 1999) maps on chromosome 16p11-12. The locus interval is relatively large (15 cm). It comprised 185 genes but none has been implicated in the disease, yet.

The objective of this work was to test relevant positional candidate genes. Six genes were tested by direct sequencing of all the coding sequences and of the intron-exon boundaries. For each gene, two affected and two unaffected patients of the two families linked to MMVP1 were tested, as well as 46 probands of smaller MVP families.

We chose 3 genes belonging to the nodal modulators family that interact with proteins of the TGFβ protein superfamily and known to play a role in heart valve formation and in regulation of collagen and extracellular matrix gene expression. The Nomo1, Nomo2 and Nomo3 genes (located on 16p13.11, 16p12.3 and 16p13.11 respectively) extend on approximately 63 Kb and contain each 30 exons. No pathogenic mutation was identified in the coding region of these genes in these families but only known polymorphisms or rare non-coding variants. We also analysed 3 members of the heparan sulfate sulfate sulfotransferase enzymes (HS3ST1, HS3ST2 and HS3ST4) that regulate the heparan sulfate proteoglycan biosynthesis process. The HS3ST2 and HS3ST4 genes are located on 16p12, are extended on approximately123 Kb, but contain each only two exons separated by a large intron. Similarly, the genetic analysis was negative and no pathogenic mutation was identified.

This study illustrates the difficulty to identify the causal gene when the linkage interval and the number of genes are large. Priority should be give to fine mapping of the MMVP1 locus.