able from patient to patient. In univariate analysis, patients who had an abnormal response had a higher increase in both peak (89±30 mm Hg) (p=0.041) and mean (55±20 mm Hg) (p=0.043) transvalvular pressure gradients. At rest both E/A ratio (1,12±0,5) (p:0.044) and E/Ea ratio (23±11) (p:0.027) were higher in the symptomatic group. During exercise E/Ea ratio and the variation of E/Ea were significantly higher in the symptomatic group. By multivariate logistic regression analysis, 2 independent predictors of an abnormal response to exercise were a higher increase of mean transaortic pressure gradient (p=0.0075) and of E/Ea ratio (p=0.0232) during exercise.
Conclusions: Increases of both mean aortic pressure gradient and of the E/Ea ratio are predictive of an abnormal response to exercise in patients with severe asymptomatic aortic stenosis.

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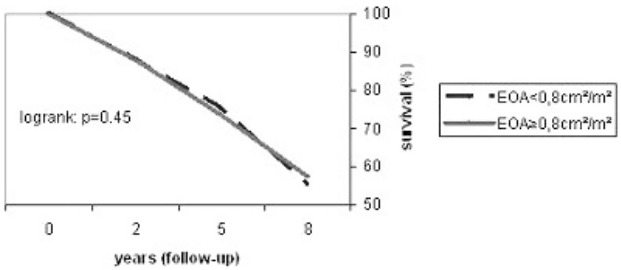
Impact of prosthesis-patient mismatch on long-term survival in patients with biological prostheses in the aortic position

E. Donal[1]; H. Corbineau[2]; J.P. Verhoye[2]; B. Lelong[3]; T. Langanay[3]; A. Leguerrier[3]
[1]Rennes, France; [2]Uniersity Hospital Pontchaillou, Cardiac Surgery Dept., Rennes, France; [3]University Hospital Pontchaillou, Cardiac Surgery Dept., Rennes, France

Background: The impact of aortic prosthesis-patient mismatch (P-PtM) on long-term survival is unclear (P-PtM has been defined as an indexed effective orifice area (IEOA) ≤0.8 or 0.85 cm²/m² in the literature).
Purpose: Cohort analysis of P-PtM impact on mortality and functional status.
Method and results: Between 1994 and 2004, 1003 patients underwent aortic valve replacement (AVR) with Mosaic Medtronic biological prostheses and had transthoracic echocardiography within 1 year after AVR. Mean age of patients was 75±6.8 years; 18.3% were ≥80 years old. Mean body surface area was 1.8±0.2 cm² Prosthetic size was 19 in 4.7%, 21 in 28.3%, 23 in 44.1%, 25 in 19.1% and 27 in 3.8% of the 1003 patients. The mean follow-up was 3.7±2.6 years. Prosthesis-IEOA was derived from the continuity equation. P-PtM was classified as severe (IOA ≤0.60 cm²/m²), moderate (0.60 cm²/m²<IEOA≤0.8 cm²/m²), or not significant (IEOA >0.8 cm²/m²). P-PtM was severe in 1.6%, moderate in 60.4% of the 1003 patients.
189 deaths were observed during the follow-up (5.1%). Operative mortality was higher in IEOA>0.8cm²/m² (6.6% vs 3.5%, p=0.002). Mean IEOA was 0.85±0.15 in the death-group vs 0.78±0.11 in the survival one (p<0.001). The Kaplan-Meier curves are displayed figure 1. Mean trans-prosthetic gradient was 18.7±5 vs 15.1±6 mm Hg and left ventricular ejection fraction was 60.4±12 vs 58±12% (p=0.01) in the P-PtM group. The functional class during follow-up was not different between the 2-group.
Conclusion: P-PtM is not an independent predictor of short or mid-term mortality in our cohort of 103 patients implanted with the same Mosaïc biological prosthetic valve.



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Identifying valvular & structural heart disease using brain natiuretic peptide: a three assay comparison

S. Modi[1]; A. Clarke[1]; C. Russell[1]; K. Heathcote[1]; S. Bowles[1]; J.D. Somauroo[1]
[1]Chester, United Kingdom

Objective: BNP has a widely developing role in predicting cardiac disease other than just LV dysfunction. We evaluate the use of three separate serum Brain Natiuretic Peptide (BNP) assays combined with other demographic and clinical data to predict significant valvular heart disease and other structural abnormalities in a cohort of patients with suspected heart failure.
Design: Prospective, single blinded cohort study of 95 patients referred by General Practitioners for open access Echocardiography. The echocardiographer was blinded to the serum BNP levels. Setting: A UK District General Hospital. Variables: Age, sex, British society of echocardiography (BSE) standard adult echocardiogram, creatinine, chest x-ray (CXR), ECG, cardiovascular risk factors, symptoms and signs, medication, simultaneous Roche® E170 NT proBNP (R-pBNP), Bayer® Centaur BNP (BC-BNP) &Biosite® Triage BNP (BT-BNP) levels.
Results: A total of 93 echocardiographs were of diagnostic quality. Including ventricular dilatation and dysfunction, or valve disease or ventricular hypertrophy classed as moderate or severe, a total of 19 patients had abnormal echocardiographs (20%). The R-pBNP assay had the highest negative predictive value at 95%, but lacked specificity when compared with the other assays (R-pBNP: sensitivity 89%, specificity 55%, positive predictive value (PPV) 34%, negative predictive value (NPV) 95%; BC-BNP: sensitivity 63%, specificity 85%, PPV 52%, NPV 90%; BT-BNP: sensitivity 58%, specificity 84%, PPV 48%, NPV 89%).
Conclusions: As well as predicting absence of LVSD, a negative BNP appears to be a reliable predictor of a structurally normal heart. Used alone to predict a normal echocardiogram, BNP can offer a substantial reduction in departmental workload (R-pBNP 45.3%, BC-BNP&BT-BNP 73.7%).

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Prevalence of echocardiographic valvular regurgitation in healthy children

I. Germanakis[1]; F. Parthenakis[1]; R. Perakaki[1]; P.E. Vardas[1]; M. Kalmanti[1]
[1]University Hospital, Pediatric Cardiology Unit, Pediatrics Dept., Heraklion Crete, Greece

Although clinically significant heart valvular insufficiency is rare in childhood, the use of sensitive modern echocardiographic systems could result in an increased prevalence of silent valvular regurgitation among otherwise healthy children.
Aim: To evaluate the prevalence of echocardiographic valvular regurgitation (VR) among healthy school age children of Mediterranean origin.
Patients-Methods: A group of 125 consecutive children, (62 boys, 63 girls, median age 8.8 yrs, range 8.2 to 10.2 yrs) participating to the initial phase of Cretan Pediatric Cardiology Survey (CPCS), were enrolled to the study. CPCS is a large scale population based study of the cardiovascular health of school age children of Cretan origin, approved by the Greek Ministry of Education. Participants undergo a detailed evaluation including cardiac auscultation, ECG and echocardiography (using a Vivid 3 Expert, GE System and age appropriate transducers). Echocardiographic valvular incompetence, was considered as insignificant in the presence of trace (at the level of valve leaflets, detected by colour Doppler) or mild (beyond the level of valve leaflets, detected additionally by PW Doppler) regurgitation. Cases of more severe valvular regurgitation, or prolapse (in cases of MVR) and/or abnormal auscultatory findings, were considered as significant.
Results: Pulmonary VR was present in 88% (trace 85%, mild 3%), tricuspid VR in 72% (trace 66%, mild 6%), mitral VR in 45.6% (trace 44%, mild 1.6%) and aortic VR in 24% (trace 20%, mild 4%) of children. Valvular regurgitation was either isolated (18%) or combined (70%) (involving two (28%), three (30%) or four valves (12%)). Mitral valve prolapse and bicuspid AoV were detected in 4.8% and 8% of children; their presence was associated with an increased likelihood for valvular regurgitation (O.R=5.6 and O.R=23.6 for AVR and MVR respectively, p<0.005). Clinical auscultation alone failed to detect children with mild echocardiographic valvular regurgitation.
Conclusions: Silent valvular regurgitation, detected during routine echocardiographic evaluation, is very common among healthy children. In the presence of a morphological normal aortic and mitral valve it should be interpreted as a normal finding.

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Valvular heart disease in patients with Parkinson disease treated with pergolide

E. Laraudogoitia Zaldumbide[1]; S. Velasco[1]; J.J. Onaindia[1]; J.R. Rumoroso[1]; I. Rilo[1]; N. Foncea[1]; S. Palomar[1]; I. Lekuona[1]
[1]Hospital de Galdakao, Vizcaya, Spain

Restrictive valvular heart disease has been reported in patients with Parkinson disease treated with pergolide. However, few data are avaible on actual frecuency, severity and dose-dependency of pergolide-induced disease.
Aim: To evaluate in a double blind and prospective study, the presence of valvular heart disease in patients treated with pergolide versus patients with Parkinson disease age-sex matched never treated with pergolide (controls).
Patients and methods: 26 patients treated with pergolide and 26 never treated were evaluated by echocardiography. Systolic and diastolic function, valvular heart disease and systolic pulmonary artery pressures (SPAP) were determined.
Results: Mean cumulative doses of pergolide was 4401 mg y daily doses was 2.19±1.24 mg/day. Mean time of treatment was 64±35 months. Some of the results are in the table.
Mitral and aortic mild esclerodegenerative changes without any repercussion were frequent in both groups as is expected in this older population. In the pergolide group, important restrictive valvular heart disease was present in two patients (2/26) with significant mitral and tricuspid regurgitation and none in the control group (in this non pergolide group, significant regurgitations were related to degenerative valvular heart disease, no restrictive). No association was found between doses and time of treatment and the presence of restrictive valvular disease.
Conclusion: In our patients with Parkinson´s disease treated with pergolide doses <5 mg/d, pergolide-induced restrictive valvular heart disease is present in 8% of patients, a lower frequency than previously reported.

Table 1

	Pergolide (n 26 p)	No pergolide (n 26 p)
Age (y)	73±8	74±9
Sex (men)	53%	50%
Mitral anterior leaflet (mm)	3.97	3.38
MR/AoR/TR grade 0	8/10/10 p	9/14/7
1	13/11/13 p	2/10/15 p
2	3/4/2 p	2/2 /4 p
3	0/0/0 p	2/0/0 p
4	2/1/0 p	1/0/0 p
SPAP (mm Hg)	39.6±14	31.7±7

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Clinically relevant valvular heart disease is rare in Parkinsons disease patients treated with pergolide

H. Linkova[1]; H. Penicka[1]; E. Ruzicka[1]; J. Roth[1]; O. Ulmanova[1]; L. Novakova[1]; M. Havlikova[1]
[1]*Prague, Czech Republic*

Background: Therapy with pergolide, an ergot-derived dopamine receptor agonist, is associated with retroperitoneal, pleural and pericardial fibrosis. The aim of this study was to investigate the relationship between the long-term use of pergolide and the prevalence of restrictive valvular heart disease.
Methods: The study population consisted of 95 patients (age 61±9 years, 24% female) with Parkinson's disease (PD) treated with pergolide and 35 healthy controls matched for age and gender. All subjects underwent transthoracic echo-Doppler examination. Valve morphology was graded as normal, restrictive or degenerative. Mitral valve tenting area and tenting distance were assessed from parasternal long-axis views.
Results: Average daily dose of pergolide, cumulative dose and median duration of treatment were 2.93±0.72 mg, 4543±1932 mg and 51.6±23 months, respectively. Severe valvular heart disease or pulmonary hypertension was not observed in any subject. Two PD patients (2.1%) and one control (2.9%) had moderate degenerative aortic regurgitation. Discrete fibrous thickening of the left-sided valves was noted in 16 PD patients (16.8 %) as compared to none of the controls ($p<0.01$). Mitral valve was affected in 10 patients and aortic valve in 6 patients. Regurgitation was not observed on any of the affected valves. Of note, in the PD patients, the mitral valve tenting area was significantly larger than in controls (1.44±0.03 cm^2 vs 1.05±0.05 cm^2, $p=0.0001$).
Conclusions: The present study demonstrated that long-term use of pergolide is not associated with clinically relevant valvular disease. Nevertheless, discrete fibrous changes with restrictive leaflet motion of left-sided valves were observed only in PD patients treated with pergolide.

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Biological ring in mitral-valve repair: echocardiography evaluation of mitral annulus dysnamics and left-ventricular function with pericardial annuloplasty

F. Roshanali[1]; M.A. Yousefnia[1]; M.H. Mandegar[1]
[1]*Day General Hospital, Tehran, Iran (Islamic Republic of)*

Objective: Annular dynamics play an important role in the valvular and ventricular function. We evaluate the effects of pericardial annuloplasty rings on mitral annulus dynamics and left-ventricular (LV) function after mitral-valve repair.
Material and methods: 100 consecutive patients were prospectively enrolled. All patients had myxomatous mitral valve with severe regurgitation and underwent identical surgical mitral-valve reconstruction. All patients underwent mitral annuloplasty with an autologous pericardial ring and other method of repair depends on involved segments. Post-operative LV systolic indices have been assessed by two-dimensional echocardiography at rest and during exercise. Mitral annular motion has been examined by mitral annulus systolic excursion (MASE). Mean and peak trans-mitral flow velocities (TMFV) and mitral valve area (MVA) have been also evaluated by continuous-wave Doppler.
Results: The mean follow-up did not differ between the groups, those being 24±6 months in (range12-35 months). Post-operative echocardiographic study did not show significant mitral regurgitation at rest or at peak exercise in any patient. There was significant increased in TMFV (from 1.14±0.20 to 1.68±0.22 m/s, t=-8, $p<0.0001$). Recruitment of LVEF reserve during exercise was observed (from 55.5±7 to 65.4±5%, t=-3.95, $p<0.005$). Significant increased MASE at all the studied longitudinal segments at rest and during exercise was observed in all patients. No calcifications have been observed on pericardial rings.
Conclusions: The autologous pericardium for annuloplasty in mitral valve has excellent mitral annulus dynamics and preserves LV function during stress conditions. Effective annular remodelling with the autologous pericardium is shown, with no echocardiographic sign of degeneration. Further studies are required to compare biological versus flexible prosthetic rings in mitral valve repair.

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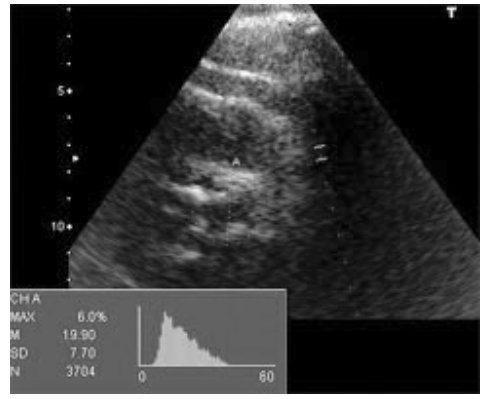
Echocardiographic densitometry In the evaluation of aortic valve calcification

J. Nelassov[1]; E. Moothien Pillay[2]; A. Kastanajan[2]
[1]*Rostov-On-Don, Russian Federation;* [2]*Rostov State Medical University, Ultrasound Dept., Rostov-On-Don, Russian Federation*

Aim: In this study we aimed to analyze if echocardiographic densitometry can be useful for assessment of aortic valve calcification.
Methods: 27 subjects were examined by röntgenoscopy for the purpose of detection of aortic valve calcification. In 8 patients (mean age 69.9±8.7 years) calcific aortic valve disease was detected and in 19 subjects (mean age 36.0±14.1 years) - was not. Echocardiographic densitometry was performed using ultrasound scanner Nemio 35 (TOSHIBA). Standard cardiac program (1HeartA) and fundamental imaging frequency of 2.5 MHz were selected. Level of gain 80 was common for all subjects. Aortic valve was visualized in parasternal short axis view. Measurements were made with 2D-Echo Histogram package and method of ellipse was applied for tracing of aortic valve. The distribution of intensity of 2D-mode echoes within the traced area (aortic valve including aortic annulus) was displayed graphically. Obtained values of Max and Mean intensity in the 2 groups were compared using t-criteria of Student. Max is the number of data corresponding to the graduation value with the maximum number of data as a percentage of the total number of data (%). Mean is a mean value of echo intensity within the traced area.
Results: Visualization of the aortic valve was performed in all cases easily. The Max value in subjects without calcification was 9.52±2.76 and in patients with aortic valve calcification - 6.13±0.83 ($p=0.002$) and the Mean value - 9.2±1.5 and 18.6±2.3 ($p<0.0001$), respectively.
Conclusion: Echocardiographic densitometry allows to differentiate between aortic valve calcification and normal valve and can give a quantitative evaluation of the degree of calcification.



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Prevalence and determinants of aortic sclerosis in patients with atherosclerosis

M.A. Losi[1]; G. Brevetti[1]; G. Barbati[1]; G. D'Alessandro[1]; V. Schiano[1]; A. Cacace[1]; S. Betocchi[1]; M. Chiariello[1]
[1]*Federico II University of Naples, Clin. Medicine, Cardiovascular & Immun. Sciences Dept., Naples, Italy*

Aortic sclerosis (AS) is a marker of increased risk for cardiovascular events. AS incidence increases with age and in specific clinical settings, and it is thought to represent a marker of atherosclerosis. Its prevalence and determinants, however, in patients with both coronary artery disease (CAD) and peripheral artery disease (PAD) are not known.
Purpose: To assess the prevalence and the determinants of AS in patients with CAD and PAD.
Methods: Patients referred for echocardiography for suspected cardiac disease were prospectively enrolled in the study. Aortic sclerosis was defined by echocardiography as focal areas of increased echogenecity on aortic cusps not inducing stenosis, i.e. maximal aortic velocity < or =2.5 m/s. History of CAD, PAD, hypertension, dyslipidemia, diabetes, and smoke were assessed in each patient. 215 patients (age 69±9 years, 167 men) were divided into four age and sex matched groups: 63 had neither history of CAD nor PAD (normal), 71 had CAD, 24 had PAD, and in the remaining 57 there was history of both CAD and PAD.
Results: AS was found in 66 patients; patients with AS were older than patients without (71±7 vs 64±9 years, $p<0.001$). AS prevalence increased significantly in patients with both CAD and PAD (Figure). By logistic regression analysis, determinants of AS were found to be age and coexistence of CAD and PAD ($p<0.001$).