(MR). This occurs, in part, by unmasking contractile dysfunction. Since MR may be dynamic and vary with contractile state, decompensation may also be due to worsening MR. This study tested the hypothesis that acute β-blockers increase the severity of MR.

Ten dogs with severe MR were instrumented with ultrasonic crystals to measure LV volume. LV pressure measurements allowed for assessment of contractile function. Forward stroke volume (FSV) was measured using the thermodilution technique. Regurgitant fraction (RF) and regurgitant volume (RV) were calculated as the difference between the volumetric stroke volume and the FSV. In a second group of six dogs, regurgitant orifice area (ROA) was measured using echocardiography. Measurements were done under control conditions (C); during esmolol infusion 300 mcg/kg/min (E); and during dobutamine infusion 30 mcg/kg/min (DB).

	LAP	FSV	RF	RV	dP/dt	ROA
C	11 ± 7	31 ± 8	54 ± 12	40 ± 19	2402 ± 606	0.60 ± 24
E	21 ± 9*	17 ± 7*	69 ± 16*	49 ± 24	1636 ± 517*	0.73 ± 20
DB	5 ± 5*	40 ± 8	40 ± 15*	41 ± 28	4302 ± 1137*	

significantly different from C: p < 0.5; LAP = left atrial pressure

Acute β-blockade precipitates hemodynamic decompensation by decreasing FSV and contractility; however, the severity of MR, as assessed by RV and ROA, is unchanged.

924-72 The Significance of an Audible S3 Is Different in Aortic Regurgitation, Mitral Regurgitation and LV Dysfunction: A Quantitative Doppler Echocardiographic Study

Robin A. Horn, Maurice E. Sarano, James B. Seward. *Mayo Clinic and Mayo Foundation, Rochester, MN*

An audible S3 is frequently heard in pts with aortic (AR) or mitral (MR) regurgitation or LV dysfunction (LVD), but its significance has not been fully clarified. In 340 pts (mean age 64 ± 14), an S3 noted by an independent clinician was correlated to noninvasive echocardiographic LV volumes at end diastole (EDVI) and end systole (ESVI), ejection fraction (EF), mitral E wave and deceleration time (DT), and regurgitant fraction (RF) measured by two methods (quantitative Doppler and 2D echocardiography). An S3 was noted in 9/61 pts (15%) with AR, 28/176 pts (16%) with MR, and 46/103 pts (45%) with LVD (p < 0.0001). Baseline characteristics in pts with and without an S3 were:

	AR		MR		LVD	
S3	Yes	No	Yes	No	Yes	No
EDVI (ml/m²)	143	107†	136	101*	149	138
ESVI (ml/m²)	67	40*	30	35*	97	108
EF (%)	53	63*	62	65	29	32
RF (%)	42	36	92	55*	30	23†
DT (ms)	202	231	197	204	142	184*

*p < 0.001, †p < 0.01

In multivariate analysis the independent predictors for an S3 were different: ESVI (p = 0.0001) for AR, RF (p = 0.007) in association with EDVI (p = 0.0001) or ESVI (p = 0.03) depending on the model used for MR, and shortened DT (p = 0.0001) for LVD. The positive and negative predictive values of an S3 were 56% and 85% for ESVI ≥ 60 ml/m² in AR, 71% and 67% for RF ≥ 50% in MR and 74% and 58% for restrictive LV filling in LVD. *We conclude* that an audible S3 1) has a different frequency and meaning in various heart diseases, 2) is associated with decreased LV function and enlarged ESVI in AR, 3) severe regurgitation and LV enlargement in MR, 4) restrictive LV filling in LVD. This data should allow improved pathophysiologic bedside interpretation of the physical examination.

924-73 HLA-DR/DQ Associations With Rheumatic Heart Disease (RHD) in Mexicans

Anastacia Magaña [1], Adolfo Chávez-Negrete [2], Lourdes Diaz [1], Concepción Velasco [2], Rubén Argüero, [2], Clara Gorodezky [1]. [1] *Dept. of Immunogenetics, INDRE, SSA, Mexico City, MEXICO;* [2] *Dept. of Internal Medicine, Cardiology Hospital, CMN, Siglo XXI. Mexico City, MEXICO*

There is increasing evidence to indicate that RHD may be genetically programmed to respond abnormally to streptococcal infections and HLA antigens seem to play a central role. We included 107 Mexican patients diagnosed as RHD according to the revised Jones Criteria. Of the total, 67.6% were females and 25% were non-adults; 6.3% had family history of rheumatic fever. The majority were born in the highlands of Mexico (77%). A group of 229 healthy controls was included for comparison. All subjects are Mexican Mestizos. Venous blood samples were withdrawn and HLA typing for class I (A,B,C) and class II (DR, DQ) antigens was performed on T and B cells respectively, isolated from mononuclear cells. The standard microcytotoxicity method was used for typing. No deviation for class I antigens was observed. DR17 was found increased in the patients (p = 0.002). The pc = NS, the RR = 2.73 and the EF = 0.14. The supertypic DR53 showed an intense association (pc = 0.02) with a similar RR = 2.54, but an EF = 0.45, suggesting that the true susceptibility genes are located in an epitope of this molecule. A resistance gene is also present; DQ6 was significantly decreased (Pc = < 0.0003) with a strong PF = 0.37. All possible correlations between the class II molecules and the clinical parameters were analyzed to determine if an HLA marker can be responsible for severity. Even if 53.3% of the cases had carditis, 42.2% suffered from polyarthritis and 64.8% had affected the mitral valve (12.1% were aortics and 23.1% were mitro-aortics), no class II antigen predisposes to any manifestation or to subgroups of age-at onset. In conclusion, DR53 is a an important marker for susceptibility and DQ6 is a strong protective factor. DNA typing is now under way to localize the exact sequences involved in the expression of RHD.

924-74 Detection of Thoracic Aortic Plaque (AP) by Multiplane Transesophageal Echocardiography (TEE) Can Predict Coronary Artery Disease (CAD) in Valvular Heart Disease (VHD). A Large Prospective Study

Christophe Tribouilloy, Marcel Peltier, Wei Feng Shen, Jean-Luc Rey, Jean-Philippe Lesbre. *University of Picardie Amiens France*

The purpose of this prospective study using a multiplane probe was to examine wether TEE absence or detection of AP could predict CAD in 221 consecutive VHD pts with VAD aged < or ≥ 70 years. In 70 pts with significant CAD, 66 had AP. AP existed in only 21 of the 151 pts with normal or subnormal coronary arteries. In the 221 pts, the presence of AP on TEE study had a sensitivity of 91%, a specificity of 86%, a positive and negative predictive values of 75% and 96% for significant CAD. In 86 patients aged ≥ 70 years, these sensitivity, specificity, and positive and negative predictive values were 97%, 79%, 79%, and 97% respectively. There was a close relation between the degree of aortic intimal changes and the severity of CAD (p < 0.00001). Multivariate stepwise regression analysis of pt age, sex, risk factors of CAD, angina and TEE findings revealed that AP, angina, hypercholesterolemia were significant independent predictors of CAD. AP was the most significant independent predictor even in pts aged ≥ 70 years.

This prospective study indicates that AP on TEE is a powerful predictor of the absence or presence and severity of CAD in VHD, even in pts aged ≥ 70 years.

924-75 How Reliable Is Transesophageal Echocardiographically-Detected Aortic Atherosclerosis to Predict Coronary Artery Disease in Patients With Valvular Heart Disease?

Olivier Dibon, Christine Selton-Suty, Alain Grentzinger, Michaël Angioï, Joseph Ancontina, Luc Feldmann, Yves Juilliére, François Cherrier, Nicolas Danchin. *Cardiology, CHU Nancy, France*

Vascular atherosclerosis is a general process that may involve the coronary arteries as well as the peripheral arteries including the aorta. To determine whether coronary artery disease (CAD) (defined as the presence of any atherosclerotic plaque on coronary angiography) could be predicted by transoesophageal echocardiographically (TEE)-detected aortic atherosclerosis, we retrospectively reviewed data from 100 consecutive pts who had undergone both TEE and coronary angiography within a 30-day period of time. The clinical indication for coronary angiography was the presence of valvular heart disease likely to require surgical treatment. The patients were 59 men and 41 women with a mean age of 60 ± 11 years. The thoracic aorta was considered normal when the intimal surface was smooth and continuous without lumen irregularities, and atherosclerotic when changes were observed, consisting of increased echodensity of the intima with or without lumen irregularities, ulceration or protruding thrombus.

Aortic atherosclerosis was observed on TEE in 50 pts. Any CAD was present on coronary angiography in 52 pts (52%) (gr1), among whom 15 had obstructive CAD (> 50% diameter stenosis) (gr2). The sensitivity (Se)(%), specificity (Sp)(%), positive predictive value (PPV)(%) and negative predictive value (NPV)(%) of TEE-detected aortic atheroma for the presence of CAD were determined for both groups:

	Se	Sp	PPV	NPV
Gr1	86	89	90	86
Gr2	86	56	26	96

TEE-detected aortic atherosclerosis is a reliable marker for the presence of any CAD. However, though the NPV is excellent for the presence of obstructive CAD, it is insufficient to accurately predict the severity of CAD in valvular heart disease pts.

MONDAY POSTER