

child-bearing age. The purpose of this study was to identify the outcome of pregnancy, delivery, and the postpartum period in women with stenotic lesions due to CHD. The data on 141 pregnancies in 64 women (age  $43.6 \pm 10$  years, 61% with S) with (22 pulmonic stenosis (PS), 15 with S; 27 aortic/subaortic stenosis (AS), 9 with S; 15 with coarctation of the aorta (COA), all with S) were analysed with a standardized questionnaire. The results were compared to the data on their medical history and the postpartum period as well as the current symptoms. Preg/w = pregnancies per woman; before S = pregnancies per woman before S; abortions = abortions per woman; BSO = body size of the offspring (cm); CHDO = CHD of the offspring (%); pmean = delta p mean (mmHg); FS = fractional shortening of left ventricle (%).

|     | Preg/w <sup>a</sup> | Before S <sup>a</sup> | Abortions <sup>a</sup> | BSO <sup>a</sup> | CHDO <sup>a</sup> | pmean <sup>a</sup> | FS <sup>a</sup> |
|-----|---------------------|-----------------------|------------------------|------------------|-------------------|--------------------|-----------------|
| PS  | 2.2 ± 1.2           | 0.3 ± 0.9             | 0.2 ± 0.5              | 48 ± 4           | 0%                | 45 ± 24            | 36 ± 5          |
| AS  | 2.3 ± 1.2           | 1.2 ± 1.2             | 0.3 ± 0.7              | 50 ± 2           | 7%                | 39 ± 28            | 43 ± 8          |
| COA | 2.0 ± 0.5           | 0.3 ± 0.6             | 0.1 ± 0.4              | 51 ± 2           | 0%                | 34 ± 15            | 38 ± 7          |

<sup>a</sup> p = n.s., \*p < 0.05 between AS and PS/COA, \*\*p < 0.05 between PS and AS/COA.

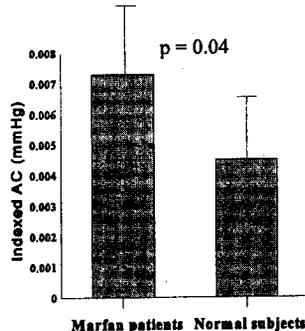
Groups were not different concerning the duration of the pregnancy (8.8 ± 0.4 months), its rate of complication (43%, including arterial hypertension, edema, dyspnoea, palpitations, dizziness, fatigue, thromboembolic events) and caesarian section (22%), as well as dyspnoea in the late follow up (NYHA 1.4 ± 0.5). Before S there was a significant difference (p < 0.05) to those without S in pmean (51 ± 22 vs 24 ± 18 mmHg) and a cardio-thoracic ratio > 0.5 (39 vs 12%).

**Conclusion:** Pregnancies with normal delivery or cesarean section are possible in women with CHD with stenotic lesions with good long term outcome before and after corrective surgery. The risk of CHD in the offspring per woman is 3.1%.

### 1065-160 Why Does the Aorta Dilate in Marfan Patients?

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Aortic dilation and aneurysm formation are the major morbid complications of Marfan patients, but their cause remains controversial. Previous studies suggest that these complications result from an abnormally stiff aortic wall; yet, paradoxically,  $\beta$ -blockers, which increase aortic stiffness, are the treatment of choice. To compare aortic stiffness in pediatric Marfan patients to normal children, we measured aortic compliance (AC) in 16 children by generating simultaneous area-pressure loops with indirect carotid pulse tracing and echo automatic quantification of aortic sinus area. AC was indexed by dividing by aortic diastolic area. **Results:** Six children (13.0 ± 3.4 y.o.) had Marfan syndrome, 10 (10.2 ± 4.2 y.o.) were normal. AC measurements are shown in the graph.



**Conclusion:** AC is significantly greater in Marfan patients vs. normals. These data suggest that aortic dilation results from an abnormally compliant aortic wall. This would allow for greater wall excursion and place increased mechanical strain on the wall. The data supports the belief that  $\beta$ -blockers are efficacious because they reduce AC (i.e. increase stiffness). Measuring AC may be useful in identifying patients at risk for dilation and monitoring  $\beta$ -blockade therapy.

### 1065-178 Perioperative Conduction and Rhythm Disturbances Following the Ross Procedure in Children and Young Adults

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To determine the incidence of peri-operative (op) conduction and rhythm disturbances after the Ross procedure, the electrocardiographic findings in

28 consecutive patients (pts) operated on between 1/95 and 8/96 were reviewed. Pre-op diagnosis, prior interventions, and post-op conduction, including sinus, AV node, and His-Purkinje function, as well as supraventricular (SVT) and ventricular (VT) tachycardia were noted. All ECGs, telemetry and 24-hour Holters were reviewed. Indications for surgery included aortic insufficiency (14 pts), aortic stenosis and insufficiency (7 pts) and complex left ventricular outflow tract (LVOT) obstruction (7 pts). Age range was 0.5–26.6 yrs (mean  $11.8 \pm 7.2$  yrs). Surgery to enlarge the LVOT was performed in 7 pts.

All survived the operation; 1 pt died suddenly on post-op day 4. Post-op rhythm disturbances included mild sinus node dysfunction in 1 pt (4%), transient complete heart block (CHB) in 3 pts (11%), and left bundle branch block (LBBB) in 6 pts (21%). Of the 9 pts with CHB or LBBB, 6 had LVOT enlarging procedures. SVT occurred early post-op in 2 pts (7%). In addition, 1 pt had atrial fibrillation 1 year post-op during pregnancy. VT occurred in 8 pts (29%); 4 pts had VT after the first post-op day and 2 are currently being treated.

**Conclusion:** In our pts undergoing the Ross procedure, mortality was low. Early post-op conduction and/or rhythm abnormalities were detected in 57% of pts. Of the 8 pts with peri-op VT, 2 pts were discharged on anti-arrhythmic medication. Long term surveillance for arrhythmias is recommended, especially in pts with peri-op VT.

### 1066 Autonomic Cardiovascular Control: Syncope/Tilt Testing/Baroreflex Function

Wednesday, March 19, 1997, Noon–2:00 p.m.

Anaheim Convention Center, Hall E

Presentation Hour: Noon–1:00 p.m.

### 1066-83 Short-Duration Pharmacological Head-up Tilt Test: Low-Dose Isoproterenol or Nitroglycerin?

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The aim of the study was to compare the diagnostic value of head-up tilt test (HUT) potentiated with intravenous low-dose isoproterenol (Isotest) with that of HUT potentiated with sublingual nitroglycerin (Nitrotest) using a short-duration initial drug-free phase. Fifty-nine patients with undefined syncope (pts) (33 M, 26 F, mean age  $44 \pm 22$  years) and 21 controls underwent the 2 tests in a randomized fashion on different days. Both tests were initially performed at 60° for 20 min without medication. If syncope did not develop subjects received i.v. isoproterenol infusion (1–3  $\mu$ g/min until the average heart rate was increased by at least 20% over baseline) or 300  $\mu$ g of sublingual nitroglycerin and continued to be tilted at the same angle for further 20 min. During Isotest a positive response (syncope associated with sudden hypotension and bradycardia) occurred in 25 pts (43%), exaggerated response (minor symptoms with slowly increasing hypotension alone) in 3 (5%) and a negative response in 30 (50%); drug intolerance was observed in 4 (7%). During Nitrotest these percentages were 50%, 3%, 47% and 0%, respectively. A concordant response was observed in 44 pts (75%). At least one test was positive in 35 pts (61%). Two controls had a positive response to Isotest and 2 to Nitrotest (9.5%). We conclude that short-duration Isotest and Nitrotest have similar positive rate (43% vs 50%) and the same specificity (90.5%) with a high concordance of results (75%). Nitrotest, however, is preferable because more practical and safer.

### 1066-84 Tilt Test Hemodynamics in Tilt Positive and Tilt Negative Children: a Comparative Study

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**Background:** Tilt testing (TT) is used in the diagnosis and management of patients with syncope. After 1 hr in the supine position our TT patients stand for 20 min. Previous data indicated that heart rate (HR) and blood pressure (BP) were lower in TT positive (TT+) than TT negative (TT-) patients at the termination of TT. Our hypothesis is that HR and BP may be different in TT+ from TT- patients throughout the study. **Methods:** We analyzed all TT performed in our lab from 2/95–4/96. HR and BP responses were recorded at 1 min intervals. In children with TT+ the last 2 minutes of tilting were excluded from analysis because HR and BP changed markedly prior to the onset of syncope. **Results:** 31 children (15 F, 16 M), mean age  $13.0 \pm 3.2$  yr, were included. TT outcome was positive in 18 children. There was no difference in age or sex between the groups. There was no difference in supine HR between TT+ and TT- children. Upon standing, the HR of TT+