Flow Characteristics Predict In-Stent Restenosis in Congenital Heart Disease


Background: Intimal proliferation is a common complication of endovascular stent placement in many settings, though its importance in stents used for congenital heart disease has been controversial. This study aimed to characterize the pressure changes within the stent and measure pulse wave propagation among 51 patients who underwent follow-up catheterization. Thirty-six Palmaz® (PS) and 15 Intrastent® (IS) were placed in 41 pulmonary arteries, 4 aortas, 3 veins, and 3 conduits/baffles. Median age at deployment was 1.7 years (range 0.4-24.0). At 14.2 ± 11.4 months follow-up, neointimal proliferation ranging from 0.3 to 2.6 mm was present in 27/31 stents (53%). Proximal pressure was listed in 8, diffuse in 19, and caused significant PSH in 10/11 (91%). PSH was not associated with the technical aspects of deployment (overdilation, incomplete stent expansion, distal vessel stenoses), or stent type. However, flow characteristics and stent size predicted restenosis. TCI occurred in 6% of vessels with non-pulsatile flow (veins and pulmonary arteries in a cavopulmonary circulation), compared with 33% in which flow was pulsatile (p < 0.04). PSH did not develop in any vessel > 9 mm in diameter. Complications included thrombosis within one PS (incomplete vein), fracture in one IS (coarctation), and restenosis of a previously dilated jailed side branch.

Conclusion: ISR is important in stents used for congenital heart disease, particularly at smaller diameters. Blood flow dynamics play an essential role in the development of neointimal proliferation.
experience a broad number of serious emergency situations with a high in-hospital and mid-term post-hospital mortality. A multidisciplinary approach and physicians experienced
enveloped with adults with CCO are mandatory for adequate management.

1192-156 Comparison of Health-Related Quality of Life (SF-36) With Exercise Testing in Patients With Congenital Heart Disease
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Objective: to compare self reported exercise capacity with objective exercise perfor-
mance in patients with congenital heart disease

Patients and methods: 108 patients (41 female, 67 male, 12-59 years old) with various congenital heart defects (10 left UH, 7 DOTOA, 20 TOF, 7 DOTOA, 4 AS, 4 AO, 5 CG, 0
Elstein, 4 VSD, 4 ASD, 4 MVP, 7 others) completed a health related quality of life ques-
tionnaire (SF-36). Then they performed a symptom limited cardiopulmonary exercise test on a bicycle in sitting position.

Results: There was a good correlation of self estimated physical function with peak oxygen uptake (r=-0.45, p<0.001). Less correlation was found with general health (r=0.28, p=0.03), emotional role (r=0.29, p=0.007), social function (r=0.20, p=0.03), and physical role (r=0.24, p=0.034). Vitality, health transition, mental health, and bodily pain were not significant.

Multivariate analyses revealed that after correcting for sex and age, physical function depends primarily and independently on maximal heart rate and ventilatory efficiency (ventilation / CO2 elimination). This outlines the high impact of dyspnea on the patients' self-estimation and the importance of sinus node dysfunction in this patient group. To the other scales of quality of life multiple parameters had only a weak correlation.

Conclusions: Patients with congenital heart defects can reliably self estimate their exercise capacity. Besides this correlation exercise performance has only little or no effect on other scales of quality of life especially on the psychological ones. Health related quality of life instruments should be included into medical outcome studies to cover all fields of patients well-being.

1192-157 All Corrected Tetralogy of Fallot Patients Should Complete the Ability Index
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The Ability Index (AI) is a classification defining the capability of patients who have or have had congenital heart disease to lead a normal life. Developed specifically for adult patients, it takes into account how patients have had to adapt their lifestyle. However it only allows subjective assessment of patient well being. We investigated whether this subjective assessment reflected objective measures of physical and cardiac functional capacities.

Methods: Twenty adult TAF patients were clinically assessed. 12 underwent cardiopulmonary exercise testing after they had completed this questionnaire.

Results: Results are expressed as mean (±SEM). 34 70F, of which 22 classified themselves as group I, 9 group II and 3 as group III, were compared with 16 age match controls (30±1 vs 74±9 years and respectively). In group I: 6 had moderate or severe PA hypertension, 2 had PA stenosis and 1 patient had mitral valve prolapse.

Conclusions: AI performed well with resting CO (r=0.72, p<0.001), peak CO (r=0.72, p<0.001, n=20), 25.7±7.8 mllmin/kg, peak work (r=0.64, p<0.001, n=20) and QoL (r=0.54, p=0.003), peak VO2 (r=0.40, p<0.001), QoL vs work (r=0.40, p=0.02) and QoL vs work (r=0.40, p=0.02) and QoL vs work (r=0.40, p=0.02)

1192-160 Coarctation of the Aorta: Prevalence of Intracranial Anomaly

Background: The prevalence of coarctation of the aorta (CoA) and intracranial aneurysm (IA) has been reported; however, the frequency of IA in patients with CoA is unknown. About 1-2% of the population has an IA. The incidence of aneurysmal subarachnoid hemorrhage (SAH) is approximately 10/100,000, most IAs do not rupture. The value of cerebral MRA screening in pt with CoA should be considered.

Methods: We performed an institutional retrospective review of patients with CoA and SAH from 1982 to 2000. In 1 pt with CoA and SAH a cerebral MRA was performed to determine the presence or absence of IA.

Conclusions: There is a significant increase in frequency of IA in pt with CoA using magnetic resonance angiography (MRA). IA was found in 24 of 55 (44%) of patients with CoA and SAH. This suggests that cerebral MRA screening in pt with CoA should be considered.

1192-165 Congenital Heart Disease: Prevalence Rates in a Population of 5,363,895 Adults
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Background: There are no population studies documenting the prevalence of adults with congenital heart disease (CHD). We hypothesized that administrative databases in a geographically defined area could be used to determine the prevalence of adults with CHD coming into contact with health care service delivery over a period of 18 years.

Methods: Since 1982, universal access to health care is available in the province of Que-
bec whose adult population (n>10 yr) in the year 2000 was 5,000,000. Records of diag-
osis from the International Classification of Disease, Ninth Revision (ICD-9) of which 10 codes designate CHD anomalies. We obtained complete data files on all patients with CHD codes since 1982. A patient and his/her diagnosis was included in our
cohort if the same CHD code was repeated a minimum of 3 times, over the course of his/ her life. The completeness of good results were obtained by dividing the number of live cases with a CHD code born during or before 1982 by the number of people >18 yrs in the year 2000.

Results: 15,539 adults with CHD were identified of which 13,179 were alive in the year 2000. This yields a total prevalence rate of 2.8/1,000. Severe CHD including tetralogy of
Fallot, truncus arteriosus, transposition complexes, univentricular heart and complete atri-oventricular canal defect occurred in 1,244 patients or a prevalence rate of .2/1,000.