Percutaneous closure of coronary artery fistulas in pediatrics

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Background.— The prevalence of coronary fistulas is poorly known in the pediatric population. However complications are potentially serious as: heart failure, sudden death, arrhythmias, and endocarditis. In adults, transcatheter closure is an alternative to surgical treatment. In pediatric populations, few publications exist on the feasibility and effectiveness of this treatment.

Aim.— To evaluate the feasibility of percutaneous closure of coronary fistulae in pediatrics, the evolution and the occurrence of complications.

Methods.— Retrospective observational multicentric national study concerning all patients under 16 who underwent transcatheter closure of a congenital coronary fistula (complex cardiopathies excluded).

Results:

<table>
<thead>
<tr>
<th>Origin</th>
<th>Left coronary (28)</th>
<th>Right coronary (28)</th>
<th>Double (5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drainage site</td>
<td>Right atrium (12)</td>
<td>Right atrium (12)</td>
<td>Right ventricle (4)</td>
</tr>
<tr>
<td></td>
<td>Right ventricle (12)</td>
<td>Right ventricle (13)</td>
<td>Pulmonary artery (1)</td>
</tr>
<tr>
<td></td>
<td>Left atrium (2)</td>
<td>Pulmonary artery (2)</td>
<td>Left atrium (1)</td>
</tr>
<tr>
<td></td>
<td>Left and right ventricle (1)</td>
<td>Pulmonary artery (1)</td>
<td></td>
</tr>
</tbody>
</table>

Population.— Sixty-one patients (36 girls, 25 boys), median age at diagnosis 0.6 years [0—15.4], 3.9 years at procedure [0—16]. Initial signs: precordial murmur (90%), congestive heart failure (11%), nonspecific ECG abnormalities (4.9%), left or right ventricular dilatation (31%). Efficiency: complete occlusion at hospital discharge in 82%, five procedures failures. Complications: no death. Three transient STEMI, three coil embolization, one ventricular fibrillation (recovered), one leg ischemia. Combination therapy: antiplatelet (46%), mean duration 4.1 months. One with AVK treatment then antiplatelet. Evolution: data are available for 43 children (70%), median follow-up 91 days [min = 0, max = 4824]. At 2 years, complete occlusion rate was 72.7% ± 7.6%.

Five reoperations (three transcatheter, two surgical procedures). One late recanalization at 17 months. No cardiovascular complication.

Conclusion.— Percutaneous closure of coronary fistulas in the pediatric population appears to be effective and relatively safe.

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The EDWARDS VALEO LIFESTENT® for treatment of cardiovascular lesions in children

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Background.— The EDWARDS VALEO LIFESTENT® is a stainless steel, pre-mounted, open cell stent. Easy dilation to large diameters and low profile are advantages in growing children. Radial force is poor.

Methods and results.— Between 4-2011 and 12-2012, 41 VALEO® stents were placed during 33 procedures, including 30 transcatheter (group 1) and three peroperative procedures (group 2). Data were retrospectively analyzed. Median age at implantation was 2.6 years (5 days—23 years), weight 10 kg (2—53). Indications were: pulmonary artery stenosis (23), pulmonary vein stenosis (1), subhepatic vein thrombosis (1), ductus arteriosus stenting (hybrid approach) for hypoplastic left heart (6) and for interrupted aortic arch (2).

In group 1, access was femoral in all except five (4 jugular, 1 transhepatic). Stent placement was achieved in all but one. Predilation was performed in 14, postdilation in 5. Early recatheterization was performed in 19 patients (median 5 months). The stent was redilated in seven patients: three (group 2) to achieve better wall apposition, one due to intimal...