Letters to the editor

Percutaneous Stent Implantation for Aortic Coarctation in Two Adults With Severe Left Ventricular Dysfunction

To the Editor:

Percutaneous stent implantation has become the treatment of choice for coarctation of the aorta (CoA) and recoarctation in adults, given the good short to medium-term results and the decrease in the rate of complications as compared with surgical repair and balloon angioplasty. We present the cases of two patients, referred to our center for heart transplantation after repair and balloon angioplasty. We present the cases of two patients, referred to our center for heart transplantation after repair and balloon angioplasty. We present the cases of two patients, referred to our center for heart transplantation after repair and balloon angioplasty. We present the cases of two patients, referred to our center for heart transplantation after repair and balloon angioplasty. We present the cases of two patients, referred to our center for heart transplantation after repair and balloon angioplasty.

Hemodynamic Data Before and After Stent Implantation. Echocardiographic Data at Baseline and One Year After Stent Implantation

<table>
<thead>
<tr>
<th></th>
<th>Case 1</th>
<th>Case 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Baseline</td>
<td>Post-Stent</td>
</tr>
<tr>
<td>Pressure in descending thoracic aorta proximal to coarctation, mm Hg</td>
<td>94/38 (60)</td>
<td>85/33 (55)</td>
</tr>
<tr>
<td>Pressure in descending thoracic aorta distal to coarctation, mm Hg</td>
<td>48/36 (43)</td>
<td>72/37 (51)</td>
</tr>
<tr>
<td>Gradient across the coarctation, mm Hg</td>
<td>46</td>
<td>13</td>
</tr>
<tr>
<td>Left ventricular diameters, mm</td>
<td>94/88</td>
<td>100/90</td>
</tr>
<tr>
<td>Ejection fraction</td>
<td>13%</td>
<td>19%</td>
</tr>
</tbody>
</table>
Aortic coarctation represents from 8% to 10% of all congenital heart disease. The patients remain asymptomatic or nearly asymptomatic for a long period of time, and it is often diagnosed in a young person undergoing a study for hypertension. Without treatment, most of the patients die before the fourth or fifth decade of life due to complications related to hypertension, such as coronary artery disease, stroke, rupture of the aorta or cerebral vessels, or heart failure. Moreover, despite surgical or percutaneous correction, there is a high risk of complications involving the aortic wall, which increases with age and in patients with a bicuspid aortic valve (25% to 50%). Heart failure has a bimodal distribution in the natural history of CoA, with an initial peak in children, generally related to associated congenital defects, and a second peak after the age of 40 years related to aortic stenosis, coronary artery disease or IDC.

The surgical results are satisfactory and the indication for surgical treatment during the first year of life is little questioned. However, the risk associated with surgery in adults is significantly higher. Balloon angioplasty is considered to be the treatment of choice in native CoA after the first year of life, until adolescence, and also in postoperative recoarctation. Its limitations include a high rate of recoarctation, a risk of acute aortic dissection of 1% to 4%
and a risk of aneurysm formation of 4% to 11.5%. Stent implantation prevents elastic recoil and reinforces weak portions of the wall, reducing the probability of recoarctation and the development of aneurysms or dissections. A review of the scientific literature demonstrates that the medium-term results with stent implantation are similar to those currently obtained with surgery and better than those obtained with balloon angioplasty. For this reason, this option, which is less aggressive for the patient, is becoming the treatment of choice for native or postoperative CoA in the adult. Its use in children is limited by the size of the release devices, the need for subsequent redilations in relation to somatic growth and the possibility of restenosis due to intrastent proliferation. Another case of successful stent implantation in an adult with CoA in the presence of severe left ventricular dysfunction and acute pulmonary edema has been reported in the scientific literature. However, despite the excellent immediate and short to medium-term results, the follow-up period for this technique is only 10 to 12 years, and future studies on the possible vascular complications and the long-term outcome in patients with stents implanted in aorta will be required.

Maite Velázquez, Felipe Hernández, Agustín Albarrán, and Juan C. Tascón

Servicio de Cardiología, Hospital Universitario 12 de Octubre, Madrid, Spain

REFERENCES