Abstract: P893

Alcohol septal ablation in patients with hypertrophic obstructive cardiomyopathy: experience at a reference center in Chile

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Topic(s):
Myocardial Disease – Treatment

Citation:

Background
Depending on the severity of septal hypertrophy and mitral valve derangements, patients with hypertrophic cardiomyopathy may develop left ventricular outflow tract (LVOT) obstruction and mitral regurgitation, which have major impact on symptoms and prognosis. Surgical myomectomy has been considered standard treatment in patients with hypertrophic obstructive cardiomyopathy (HOCM) who remain symptomatic despite medical therapy. Alcohol septal ablation (ASA), is a minimally invasive therapy for HOCM.

Purpose
Our aim was to assess short and long term outcomes and complications of ASA performed to symptomatic HOCM patients in our center.

Methods
We performed a retrospective observational study of patients undergoing ASA for HOCM between January 2002 and September 2018. According to local protocol, clinical evaluation and echocardiography were performed at baseline and 6 months after ASA. Local databases were reviewed, along with direct patient contact when required.

Results
ASA was performed in 73 patients with HOCM. Mean age was 57.5±12.8 years; 63% were male; 83.5% were on III-IV NYHA class, 32.9% had syncope; 12.3% had family history of sudden cardiac death, 93.6% received beta blockers, 6.8% had implantable cardioverter defibrillator. Mean alcohol injection per procedure was 2.45±1.03 cc. Invasive resting gradients were acutely reduced from 61.2±36.3 mmHg to 23.4±27.5 mmHg (p<0.001), and dynamic gradients from 106.5±37.3 mmHg to 31.0±28.0 mmHg (p<0.001). Hemodynamic success (reduction in resting gradient to <30 mmHg or dynamic gradient >50%) was achieved in 82.2% patients. We observed improvements in mitral regurgitation at ventriculography (Figure 1A, p<0.001), a decline of =1 severity degree was noticed in 53 patients (72.6%). Maximal creatine kinase after ASA was 2055±851 U/l. Average length of hospitalization was 4.4±5.0 days. Reablation was performed in 12 patients, 7 were planned staged procedures and 5 due to unsuccessful ASA. We observed no in-hospital mortality. Permanent pacemaker were implanted in 9 patients. Vascular access complications occurred in 3 patients. Coronary dissection and cardiac tamponade occurred in 1 patient respectively. Complications were more frequent after reablation (50% vs 17%, p<0.01). At 6 months, we observed improvements in NYHA class (Figure 1B, p<0.001), a decline of =1 NYHA class was found in 68 patients (93.2%). Echocardiographic assessment exposed reductions in septal thickness (25.0±5.5 vs 17.1±5.3 mm, p<0.001), LVOT gradients (86.7±27.3 vs 38.4±15.1 mmHg, p<0.001) and systolic anterior motion of the mitral valve prevalence (61.6% vs 24.7%, p=0.002). At 12 months, we detected only 1 death due to COPD. No cardiovascular deaths were noted in patients achieving 5 years of follow-up (n=49).

Conclusion
ASA was a safe and effective procedure in symptomatic HOCM, resulting in reductions of septal thickness, LVOT gradients and mitral regurgitation severity, as well as an improvement in NYHA class.
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Figure 1A. Mitral regurgitation severity

<table>
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<th>Severity</th>
<th>Baseline</th>
<th>After ASA</th>
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<tr>
<td>2</td>
<td>3</td>
<td>18</td>
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<tr>
<td>0-1</td>
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Figure 1B. NYHA functional class

<table>
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<th>Baseline</th>
<th>After ASA</th>
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</thead>
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<tr>
<td>IV</td>
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<td>0</td>
</tr>
<tr>
<td>III</td>
<td>59.0</td>
<td>2.0</td>
</tr>
<tr>
<td>II</td>
<td>11.0</td>
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<tr>
<td>I</td>
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