Risk stratification in moderate and severe aortic valve stenosis: prognostic impact of renal failure and diabetes mellitus

C. Bruch, D. Kauling, H. Reiweger, T. Wichter, G. Breithardt

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Conclusion: In patients with similar degree of asymmetric mild to moderate AS, concomitant HT is associated with higher LV mass as well as more concomitant hypertrophy. The clinical significance of these findings will be assessed in long-term follow-up.

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Methods: We retrospectively studied a group of 32 Pts (25 males) with CAD and mild (VMmax < 2 and < 3 ms/m²), moderate (VMmax < 3 and < 4 ms/m²) or severe (VMmax > 4 ms/m²) AVS. All Pts had at least 2 echocardiographic studies (Echo I and Echo II) > 6 months apart (26±17 months). At the time of Echo I, mean age was 72±7 years. CAD risk factors such as hypertension, hypercholesterolemia, current smoking and diabetes were present in respectively 84%, 24% and 16% Pts. 11 Pts had chronic renal failure not requiring dialysis and 23 (72%) were taking statins. Three-velled AVS was present in 16 (50%), two-velled in 13 (40.6%) and one-velled in 5 (16%). Previous MI was present in 13 (40.6%), clinical (or silent) AVS was present in 3 (9.6%) and CAD in AVS (14, 34%). There are no patients with significant LV dysfunction and between the two echo no events occurred which could compromise LV function. Results: The results of Echo I and II are presented in the table. From Echo I to II, 11 Pts climbed to a more severe grade of AVS. The rate of increase of VMmax was 0.15±0.40 ms/m²/year and of Peak gradient was 6.5±12.4 mmHg/year. After Echo II, CADG with consequent AVR was performed in 10 Pts, 3 of whom had previous CASG > 8 years earlier.

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Plasma levels of peripheral inflammatory markers are associated with the regression of left ventricular stiffness after valve replacement for aortic stenosis

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Background: The progression of aortic valve stenosis (AVS) has been associated with a low grade inflammatory process concerning the activation of pro-inflammatory and chemotactic cytokines. This study investigates the relationship of representative plasma inflammatory markers [high sensitive (hs) CRP, TNF-a, MCP-1] with the regression of left ventricular (LV) hypotrophy and stiffness (LVSS) after valve replacement of AVS.

Methods: Forty-three patients (27 men, mean age: 61±12, 16 women, mean age: 68±17 years) underwent valve replacement for AVS, and plasma inflammatory markers were measured at baseline and 10 days, 3 and 6 months post-operatively. A Doppler analysis of mitral annular velocities (S', E', A') was performed. The progression of AVS was defined as an increase of the velocity of mitral jet by 2.5 m/s and < 4.0 m/s, and mean gradient by 6.5 mmHg/year. The results of Echo I and II are presented in the table. From Echo I to II, 11 Pts climbed to a more severe grade of AVS. The rate of increase of VMmax was 0.15±0.4 ms/m²/year and of Peak gradient was 6.5±12.4 mmHg/year. After Echo II, CADG with consequent AVR was performed in 10 Pts, 3 of whom had previous CASG > 8 years earlier.

Conclusion: The rate of increase and the progression of left ventricular stiffness after valve replacement for aortic stenosis (AVS) may be associated with a low grade inflammatory process. The progression of AVS was assessed by the velocity of mitral jet and mean gradient by ≥ 2.5 m/s and < 4.0 m/s, and mean gradient by > 6.5 mmHg/year. The results of Echo I and II are presented in the table. From Echo I to II, 11 Pts climbed to a more severe grade of AVS. The rate of increase of VMmax was 0.15±0.4 ms/m²/year and of Peak gradient was 6.5±12.4 mmHg/year. After Echo II, CADG with consequent AVR was performed in 10 Pts, 3 of whom had previous CASG > 8 years earlier.

Results: The results of Echo I and II are presented in the table. From Echo I to II, 11 Pts climbed to a more severe grade of AVS. The rate of increase of VMmax was 0.15±0.4 ms/m²/year and of Peak gradient was 6.5±12.4 mmHg/year. After Echo II, CADG with consequent AVR was performed in 10 Pts, 3 of whom had previous CASG > 8 years earlier.

Table

<table>
<thead>
<tr>
<th>Variable</th>
<th>Echo I</th>
<th>P value</th>
<th>Echo II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Known HT</td>
<td>0.067</td>
<td>2.923</td>
<td>0.004</td>
</tr>
<tr>
<td>Age (years)</td>
<td>0.002</td>
<td>0.073</td>
<td>0.942</td>
</tr>
<tr>
<td>Body mass index (kg/m²)</td>
<td>0.276</td>
<td>12.267</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Aortic valve area/blood flow area (cm²/m²)</td>
<td>0.002</td>
<td>-0.907</td>
<td>0.001</td>
</tr>
<tr>
<td>Ejection fraction (%)</td>
<td>-0.123</td>
<td>-5.517</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Male Gender</td>
<td>0.379</td>
<td>16.779</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

Conclusion: In patients with similar degree of asymmetric mild to moderate AS, concomitant HT is associated with higher LV mass as well as more concomitant hypertrophy. The clinical significance of these findings will be assessed in long-term follow-up.

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Np-pro-BNP plasma levels are associated with temporal changes of early colour M-Mode flow propagation after aortic valve replacement

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Introduction: Early color M-Mode flow propagation (FP) has been suggested as a useful marker of left ventricular (LV) diastolic function. Elevations of Np-pro-BNP levels may also reflect elevated LV filling pressures. This study investigates the possible relationship of Np-pro-BNP plasma levels with FP and aortic valve replacement (AVR) in patients with severe aortic valve stenosis (AVS) and preserved LV systolic function.

Methods: During 2002, we studied 43 patients who underwent valve replacement for severe aortic AVS (27 men, mean age 60±12 years). Patients with an ejection fraction < 50% were excluded. NP was measured by echocardiography preoperatively and 10 days, 3 and 6 months after surgery.

Results: The rate of increase and the progression of left ventricular stiffness after valve replacement for aortic stenosis may be associated with a low grade inflammatory process. The progression of AVS was assessed by the velocity of mitral jet and mean gradient by ≥ 2.5 m/s and < 4.0 m/s, and mean gradient by > 6.5 mmHg/year. The results of Echo I and II are presented in the table. From Echo I to II, 11 Pts climbed to a more severe grade of AVS. The rate of increase of VMmax was 0.15±0.4 ms/m²/year and of Peak gradient was 6.5±12.4 mmHg/year. After Echo II, CADG with consequent AVR was performed in 10 Pts, 3 of whom had previous CASG > 8 years earlier.