

## **Usefulness and Safety of Exercise Stress Echocardiography in Asymptomatic Patients with Very Severe Aortic Stenosis**

**Daniel Weisenberg, Yaron Shapira, Mordehay Vaturi, Daniel Monakier, Tamir Bental,  
Alik Sagie**

*Cardiology, Rabin Medical Center, Israel*

### **Background:**

The optimal timing for surgery in asymptomatic patients (pts) with very severe aortic stenosis (AS) is debatable. The clinical contribution of exercise stress echocardiography (ESE) in the management of this population remains unknown.

### **Methods and Results:**

A total of 49 consecutive asymptomatic patients (31 male; age  $68 \pm 11$  years) with very severe AS (defined by a peak trans-aortic jet velocity  $\geq 5$  m/s and/or mean gradient  $\geq 60$  mmHg), who underwent ESE at our Echo Lab between 8/2001 and 10/2011, were prospectively followed for  $18.4 \pm 21.4$  months. Patients with more than mild to moderate mitral/aortic regurgitation, previous valvular surgery or left ventricular dysfunction were excluded. ESE was abnormal in 21 pts (43%) due to symptoms or blood pressure drop at peak effort, whereas no cases of syncope nor complex ventricular arrhythmias were observed. There was no statistically significant difference in aortic valve area, peak and mean trans-aortic gradients at rest and during effort between patients with normal and abnormal ESE. Coronary artery disease was present in 20 out of 44 pts in whom angiography was performed. An abnormal contractile response was observed in 8 pts (16%), two of them without significant coronary artery disease.

A total of 43 pts (88%) were referred for surgery at a mean interval of 15.2 months from the index ESE. Twenty-three out of 28 pts with a normal ESE underwent surgery as compared with 20 out of 21 pts with abnormal ESE (mean interval between ESE and surgery 21.4 vs. 8.1 months, P value= 0.01). Eleven patients with normal ESE were referred for surgery due to symptoms development after a mean period of 22 months from the index ESE. Two pts with normal ESE didn't undergo surgery and remained asymptomatic for 2.2 and 8.8 years; and two other died 2.3 and 2.7 years after the index ESE respectively. Only one patient with an abnormal ESE, who refused surgery, died 4.4 years afterwards. In total, 6 pts. died (12% of the population).

### **Conclusions:**

ESE may be safely performed and is capable of unmasking symptoms and hemodynamic deterioration in almost half of "asymptomatic" patients with very severe AS. In selected cases, patients with normal ESE, may be closely followed until symptoms develop.