

Very-long-term observation after pulmonary valvuloplasty shows higher than expected risk of pulmonary insufficiency

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Introduction:

It is generally accepted that percutaneous balloon pulmonary valvuloplasty (PBPV) has excellent short- and long-term outcomes in relieving valvular pulmonary stenosis.

Methods:

Between 1992 and 2005, 84 patients were treated by PBPV and their data was retrospectively revived. There were two early and one late mortality. Four patients were converted to surgery due to supra-valvular component of stenosis. Of the remaining 77 eligible patients, 21 were lost to follow-up and 56 responded to study invitation and underwent detailed echocardiography according to current guideline protocol.

Results:

The average long-term observation period was 13,8 years (range 6-24), the average age at the final examination was 23,2 years (range 6-69) and 41% were male. On the day of the procedure the patients were 9,4 years old (range 0-60). The average pressure gradient by Doppler was 79mmHg (range 40-182), valvular annulus average diameter 1,5cm (range 0,65-2,41) and balloon-to-annulus ratio (BAR) was 1,25 (+/-0,18). There were four patients undergoing the procedure twice for lack of technical success at first attempt. After successful procedure the average gradient was 39mmHg and there was further drop to 12mmHg (range 4-42) at the final examination (both differences statistically significant). Only one patient was exceeding 40mmHg and none had indications for late repeat PBPV. Right ventricular dilatation was found in 4-51% of cases dependently on the echocardiographic parameter considered and 44% had dilated pulmonary artery. TAPSE was diminished in 7% of the patients, all having comorbidities. Using current quantification criteria 39% of patients had insignificant pulmonary insufficiency, 46% moderate and 14% severe. Mean vena contracta was 0,5cm and maximum 1,6cm. There was no correlation of the degree of insufficiency and BAR as in vast majority of cases it was close to 1,3. No significant arrhythmias were noted, 4% of patients were NYHA II, none had clinical signs of overt heart failure.

Conclusions:

This very-long-term observational study confirms excellent stenosis relieve outcome but points out significant risk of pulmonary insufficiency. Despite good clinical status the above findings call for vigilant follow-up and in selected subset of patients an MRI study, because some patients may become candidates for pulmonary valve replacement.