

Medical Expertise

"Development of the European Network in Orphan Cardiovascular Diseases"
„Rozszerzenie Europejskiej Sieci Współpracy ds Sierocych Chorób Kardiologicznych”

EXPERT: Krzysztof Bederski MD, thoracic surgeon

Affiliation: *Department of Thoracic Surgery, John Paul II Hospital,
Krakow, Poland*

CASE SUMMARY

The authors present a case of a 75-year-old man with valvular pulmonary stenosis and concomitant diseases: hyperlipidemia, hypertension, current smoking, coronary artery disease with the history of percutaneous coronary angioplasty and significant stenosis of right internal carotid artery (90% in angiography). The pulmonary stenosis was first diagnosed in 2009 when the patient was presented with the chest pain in class III according to CCS – at that time the gradient in right ventricle outflow was 75/39mmHg in echocardiography, magnetic resonance imaging revealed opening area of pulmonary valve of 0,5cm² and ejection fraction of right ventricle of 81%, the systolic pressure in right ventricle was 107mmHg in right heart catheterization. Then after percutaneous coronary intervention of right coronary artery with two bare metal stent implantation, the patient was asymptomatic for four years up to 2013 when limited exercise tolerance and chest pain reappeared. Current echocardiographic evaluation revealed valvular pulmonary stenosis with the gradient of 74/47mmHg, right ventricle hypertrophy, slightly decreased tricuspid annular plane systolic excursion (14mm), normal systolic and impaired diastolic function of the left ventricle. Maximum oxygen consumption in cardiopulmonary exercise test was 27ml/kg/min. Coronary angioplasty of posterior descending artery with drug eluting stent implantation was performed, the carotid stenting was planned as a second stage procedure and the pulmonary valve balloon angioplasty was considered as a next one. This management strategy was approved by the experts of the Meeting of the Centre for Rare Cardiovascular Diseases.

DISCUSSION

According to the current guidelines patients with pulmonary stenosis should be repaired regardless of symptoms when Doppler peak gradient exceeds 64mmHg provided that right ventricle function is normal and no valve substitute is necessary (class I, level C). In

valvular pulmonary stenosis balloon valvuloplasty should be the method of choice (class I, level C). [1] Literature data indicate high efficiency and low risk of this procedure in adult. Both short-term and long-term results are excellent. [2-5] Also in older adult, even up to 80 years old the results are satisfactory. [6, 7] A significant reduction in gradient is achieved in up to 80% of cases and most patients are free of events in the long term after a single procedure. What is more, further reduction in residual gradients can occur over time due to reduction of residual hypertrophic subvalvular stenosis over time. [8] The moderate or greater pulmonary regurgitation may develop also in the long term following valvuloplasty [9]. It is worth noting that pulmonary valve gradients >50 mm Hg is associated with poor outcomes from right ventricular infarction, ventricular arrhythmias, and sudden death. [10]

EXPERT'S OPINION

Taking into consideration medical history of this patient, current guidelines and cited above literature data, percutaneous pulmonary valve balloon angioplasty seems to be reasonable solution. Due to coexisting coronary artery disease with the history of percutaneous coronary angioplasty of the right coronary artery and posterior descending artery, the procedure may be important also for prognosis of this patient in case of myocardial infarction.

CONCLUSION

Percutaneous balloon valvuloplasty is a method of choice in severe valvular pulmonary stenosis. It is associated with low risk and high efficiency even in older adult.

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