

## VALVULAR DISEASE

# Prognostic relevance of pulmonary hypertension in valvular disease

In two papers published in the *American Journal of Cardiology*, the presence of pulmonary hypertension in patients undergoing transcatheter aortic valve implantation (TAVI) or exercise pulmonary hypertension in patients with secondary mitral regurgitation, have been found to be important independent predictors of poor prognosis. Assessment of systolic pulmonary arterial pressure (SPAP) might help to risk stratify patients before valvular intervention or surgery.

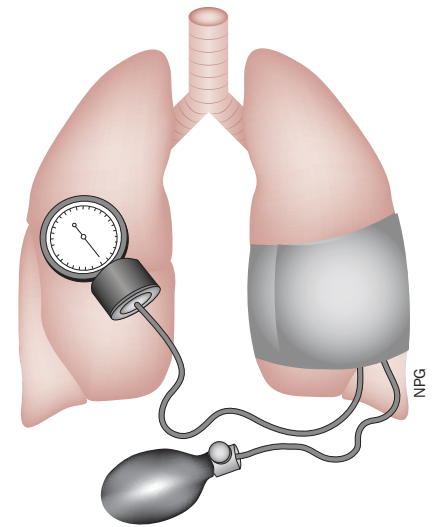
Barbash and colleagues undertook a retrospective analysis of 415 consecutive patients with symptomatic, severe aortic stenosis who underwent TAVI at the MedStar Washington Hospital Center, Washington DC, USA between 2007 and 2013. In this high-risk population of patients, the mean age was  $84 \pm 8$  years. Overall, 41% of patients had no or mild pulmonary hypertension (SPAP  $\leq 50$  mmHg), whereas 59% of patients had moderate or severe pulmonary hypertension (SPAP  $> 50$  mmHg). After TAVI, SPAP tended to be lowered in patients with moderate or severe pulmonary hypertension, but values decreased by  $> 10$  mmHg in only 26% of these patients, and generally remained higher than in patients with no or mild pulmonary hypertension at baseline.

Compared with patients with no or mild pulmonary hypertension, those with moderate or severe pulmonary hypertension had a higher mortality while in hospital (7.0% vs 13.5%;  $P = 0.03$ ), after

30 days (7.4% vs 14.5%;  $P = 0.02$ ) and at 1 year (21.0% vs 30.8%;  $P = 0.02$ ). In a multivariable analysis, baseline SPAP was an independent predictor of poor short-term and long-term outcome after TAVI. However, the investigators caution that the presence of pulmonary hypertension, by itself, “has a low power to predict poor outcome as indicated by the intermediate sensitivity and specificity”.

Poor prognosis might be explained by the lack of substantial improvement in SPAP after TAVI, or by an association between persistent pulmonary hypertension and residual paravalvular leak. The investigators suggest that a potential approach “in patients with severe pulmonary hypertension is to perform balloon aortic valvuloplasty and to assess response to the procedure”.

In a separate study, Lancellotti *et al.* assessed the prognostic relevance of exercise pulmonary hypertension ( $> 60$  mmHg) in 159 consecutive patients with secondary mitral regurgitation at the Heart Valve Clinic of the University of Liège Hospital, Belgium between 2005 and 2012. During follow-up (mean  $35 \pm 11$  months) patients with exercise pulmonary hypertension had a higher rate of cardiac events than those without exercise pulmonary hypertension ( $40 \pm 7\%$  vs  $20 \pm 5\%$ ; HR 3.3, 95% CI 1.8–5.9,  $P < 0.0001$ ). Furthermore, patients with exercise pulmonary hypertension had an increased risk of death (HR 5.9, 95% CI 2.2–15.9,  $P < 0.0001$ ). In a multivariable Cox proportional hazards model, exercise



pulmonary hypertension was a powerful predictor of poor outcome.

In the investigators' experience, “exercise SPAP is a much more reproducible and feasible parameter than exercise mitral regurgitation severity”. Therefore, they recommend “systematic quantification of SPAP during exercise, especially when mitral regurgitation evaluation is difficult”.

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**Original articles** Barbash, I. M. *et al.* Prevalence and impact of pulmonary hypertension on patients with aortic stenosis undergoing transcatheter aortic valve replacement. *Am. J. Cardiol.* doi:10.1016/j.amjcard.2015.02.022 | Lancellotti, P. *et al.* Clinical significance of exercise pulmonary hypertension in secondary mitral regurgitation. *Am. J. Cardiol.* 10.1016/j.amjcard.2015.02.028