

Prognostic value of N-terminal pro-B-type natriuretic peptide in aortic valve stenosis

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Aortic valve replacement (AVR) is indicated for symptomatic patients with severe AS, but whether asymptomatic patients should undergo AVR or should be treated conservatively is controversial. For patients with moderate AS surgical treatment is generally not recommended.

In patients with AS, BNP and NT-proBNP rise in correlation with severity and functional status assessed by the NYHA classification. Recently, two studies showed a predictive value for BNP and NT-proBNP in patients with severe AS whom underwent AVR. Both studies showed that BNP and NT-proBNP provided independent prognostic information for postoperative outcome.

In the study cited below the prognostic value of NT-proBNP was evaluated comparatively in patients with valvular AS who are treated conservatively, and in patients undergoing valve replacement.

159 patients were followed up from April 2002 to November 2003. 102 patients underwent AVR and 57 were treated conservatively. All patients had ejection fraction above 45% documented by echocardiography. NT-proBNP at baseline was raised in association with the degree of severity and of functional status. Patients with atrial fibrillation had higher values than patients in sinus rhythm ($p = 0.001$). Baseline NT-proBNP was higher in patients

undergoing AVR than in patients who were treated conservatively.

In the entire study population baseline NT-proBNP concentrations were lower in patients without an adverse event during the follow up period than in patients who died of cardiac causes or who were readmitted for heart failure ($p = 0.028$). This difference was even more obvious in conservatively treated patients ($p = 0.002$).

On the contrary, in surgically treated patients only the presence of atrial fibrillation, but not baseline NT-proBNP, was an independent predictor for an adverse outcome.

The major finding was that NT-proBNP value was related to disease severity and provided independent prognostic information for an adverse outcome in the entire study population. However, subgroup analyses showed that the prognostic value of NT-proBNP was limited to patients who were treated conservatively. For patients undergoing valve surgery NT-proBNP had no prognostic value.

A cut-off value of NT-proBNP for the prediction of an adverse outcome of 640 pg/ml was determined.

In summary, NT-proBNP assessment improves risk stratification and may contribute to deciding on the optimal timing of valve replacement. However, this hypothesis needs to be tested in further prospective studies.

Comment on the paper:

M Weber, M Hausen, R Arnold et al –Prognostic value of N-terminal pro-B-type natriuretic peptide for conservatively and surgically treated patients with aortic valve stenosis, *Heart* 2006; 92:1639-1644