

## **The effect of valve replacement on natriuretic peptides (NT-proANP and NT-proBNP) in patients with heart valve disease.**

*Laila Hellgren, Elisabeth Ståhle, Uppsala Sweden.*

### **Objectives:**

Increased plasma concentrations of natriuretic peptides is seen in patients with heart valve disease. The effect of valve replacement on these peptides are scarcely examined. The hypothesis was that plasma levels of these peptides would significantly decrease after surgery since valve replacement offers substantial hemodynamic improvement.

### **Methods:**

NT-proANP and NT-proBNP were examined preoperatively and on postoperative day 4 in all consecutive patients undergoing heart valve surgery from May 1<sup>st</sup> to December 31<sup>st</sup>, 2005.

### **Results:**

There were in total 170 patients who underwent: aortic valve replacement (122), mitral valve repair or replacement (39) and double valve replacement (5). Mean age was 67 $\pm$ 4 years and 42 had concomitant CABG. Distribution according to NYHA class was: 15% in NYHA class I/II, 46% in IIIA, and 45% in IIB/IV.

There was a significant increase in NT-proANP after all procedures, except for patients with EF <30% (pre 2940  $\pm$  111 and post 2368 $\pm$ 51) and patients in NYHA class IV (pre 3267 $\pm$ 150 and post 2344 $\pm$  113) who showed reduced levels. The highest mean increases in NT-proANP were seen in patients with postoperative atrial fibrillation (1245 $\pm$ 112), concomitant CABG (1119 $\pm$ 90), and NYHA class II-IIIa (1577 $\pm$ 131).

NT-proBNP was increased in all patients except patients in NYHA class IV (pre 5750 $\pm$ 322 and post 5130  $\pm$ 256).

The highest NT-proBNP increases were seen in patients with preoperative atrial fibrillation, concomitant CABG and lesser preoperative NYHA functional class.

Patients with regurgitant lesions showed greater mean reductions in both NT-proANP and NT-proBNP as compared to patients with stenotic lesions regardless of aortic or mitral position.

### **Conclusions:**

NT-proANP and NT-proBNP is increased in patients with heart valve disease and continue to remain high after the valve replacement procedure except in patients with more advanced NYHA class and reduced LV-function preoperatively. Thus, the changes in natriuretic peptides levels associated with valve replacement do not fully reflect the degree of hemodynamic improvement that occurs with surgery.