

# EuroValve

October 24-25 2014, Rome, Italy

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## Clinical Significance of Serial BNP Changes in Asymptomatic Patients with Aortic Stenosis

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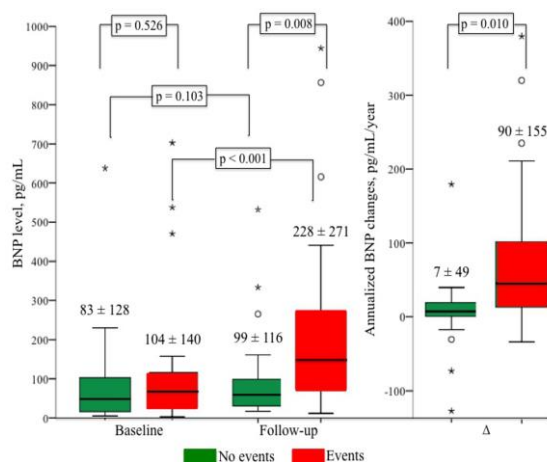
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**Background:** ESC guidelines emphasized the usefulness of B-type natriuretic peptide (BNP) measurements for the management of asymptomatic patients with aortic stenosis (AS) and preserved left ventricular ejection fraction (LVEF). The aim of this study was to determine the impact on outcome of serial BNP changes during follow-up.

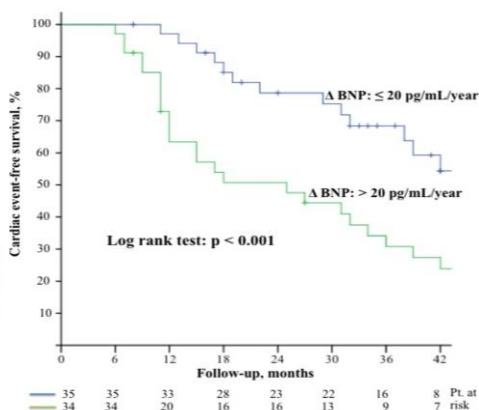
**Methods:** We studied 69 asymptomatic patients with  $\geq$  moderate AS ( $1.0 \pm 0.2 \text{ cm}^2$ ) and preserved LVEF ( $67 \pm 6\%$ ) who underwent BNP level measurement at baseline and after each 6 or 12 months. Annualized BNP changes were calculated as the difference between the last and baseline BNP measurements divided by the duration of follow-up.

**Results:** Mean of annualized BNP changes was  $+59 \pm 132 \text{ pg/mL/year}$  (median: +20). During a follow-up of  $30 \pm 19$  months, 43 patients experienced cardiac event (i.e. occurrence of symptoms, aortic valve replacement, cardiovascular death). Those patients were significantly older ( $73 \pm 9$  vs.  $65 \pm 16$  years;  $p=0.010$ ), had more often dyslipidemia (79% vs. 42%;  $p=0.038$ ), a more severe AS (peak velocity:  $3.9 \pm 0.6$  vs.  $3.5 \pm 0.6 \text{ m/s}$ ;  $p=0.002$ ), a larger indexed left atrial area ( $10.2 \pm 2.5$  vs.  $8.7 \pm 1.9 \text{ cm}^2/\text{m}^2$ ;  $p=0.006$ ) and a higher increase in annualized BNP ( $+90 \pm 155$  vs.  $+7 \pm 49 \text{ pg/mL/year}$ ;  $p=0.010$ ). Patients with higher annualized BNP changes ( $> 20 \text{ pg/mL/year}$ ) had a significantly lower cardiac event-free survival (1-year:  $63 \pm 8\%$  vs.  $97 \pm 3\%$ ; 3-year:  $31 \pm 8\%$  vs.  $68 \pm 8\%$ ;  $p<0.001$ ). Using multivariate Cox proportional hazards model, higher annualized BNP changes were significantly associated with increased risk of cardiac events (HR: 2.68, 95% CI: 1.24 – 5.79;  $p=0.012$ ) after adjustment for age, sex, dyslipidemia, echocardiographic parameters and baseline BNP level.

**Figure 1:** Comparison of baseline BNP, follow-up BNP and annualized BNP changes ( $\Delta$ ) according to cardiac events.



**Figure 2:** Event-free survival according to median of annualized BNP changes.



**Conclusion:** In asymptomatic patients with AS and preserved LVEF, the use of serial BNP changes may help to anticipate development of class I indication for aortic valve replacement and may predict outcome.