Pronostic value of brain natriuretic peptide in elderly patients with aortic stenosis

The COFRASA – GENERAC study
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Background
Aortic valve stenosis (AS) is the most common valvular heart disease in elderly people. Survival is poor since the onset of symptoms and the only treatment is surgery. Detection of high-risk patients is an important issue for the management of AS patients. Previous studies have shown that plasma levels of BNP increases with AS severity and may provide prognostic information. However, these studies were impeded by selection bias and inclusion of relatively young patients, their retrospective nature or small sample sizes. In addition, a wide overlap of BNP values between symptomatic and asymptomatic patients was observed. Thus, the aim of the present study was to evaluate the prognostic value of BNP in a prospective cohort of elderly patients with AS.

Methods
Nt-proBNP was measured at entry in the study and patients were prospectively followed on a yearly basis. Inclusion criteria were age ≥ 70 years, at least mild AS (mean gradient ≥ 10 mm Hg), absence of symptoms and absence of significant pulmonary or renal insufficiency (creatinine clearance < 30 ml/min). The clinical endpoint for outcome was a composite endpoint including only valve related events: cardiovascular death or new symptoms (dyspnea, angina or syncope).

Results (1)
Three hundred and forty six patients were included. Mean age was 79±6 years. Two hundred and twenty five had severe AS (valve area < 1 cm²) and 196 were asymptomatic. Nt-proBNP increased with NYHA class and hemodynamic parameters (p<0.0001). However, Nt-proBNP values were widely scattered with a large overlap between symptomatic and asymptomatic patients (median and 95% CI were respectively 193[28-2561]pg/ml and 618[58-14868]pg/ml).

Results (2)
Consequently, Nt-proBNP had poor sensitivity and specificity for the detection of patients with severe symptomatic AS (ROC curve=0.73, sensitivity=47%, specificity=85%, cut off Nt-proBNP value of 737 pg/ml).

Results (3)
Among the 150 asymptomatic patients, 12 underwent a prophylactic surgery and follow-up was available in 126 (91%). Patients with proBNP < 300 pg/ml had a better outcome than patients with Nt-proBNP between 300 and 700pg/ml, or > 700pg/ml (99% vs. 90% and 86% event free survival at one year, p=0.004). However, in multivariate analysis, Nt-proBNP was not an independent predictor of outcome after adjustment for valve area, age and gender (p=0.3).

Conclusion
Our study is the first to enhance the limits of Nt-proBNP for the evaluation of AS patients. Our data show that Nt-proBNP is not an independent prognostic factor of outcome and raises caution regarding a patients’ management based on BNP value especially in the elderly population.