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Clinical research

NT-proBNP testing for diagnosis and short-term prognosis in acute destabilized heart failure: an international pooled analysis of 1256 patients

The International Collaborative of NT-proBNP Study

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KEYWORDS

Aims Experience with amino-terminal pro-brain natriuretic peptide (NT-proBNP) testing for evaluation of

Figure 5 The Kaplan–Meier curves demonstrating survival rates of patients with acute HF ($n = 720$) during the first 76 days following presentation, expressed as a function of NT-proBNP concentration (log-rank test, $P < 0.001$).

The importance of age stratification to improve the accuracy of natriuretic peptide testing to confirm the diagnosis of acute HF is supported by the observation of a direct relationship between age and levels of both NT-proBNP and BNP.[11–13] This relationship between age and natriuretic peptide levels is likely consequent to age-related changes in left ventricular compliance,[14] as well as decreasing GFR.[15] Notably, although age stratification improves the ability of NT-proBNP to identify a high likelihood for acute HF, we found no need for age stratification to exclude the diagnosis. The confirmation and exclusion cut-points for NT-proBNP will help clinicians more confidently utilize the marker in the evaluation of the dyspnoeic patient, preserving sensitivity for younger patients with suspected HF, while optimizing specificity for elderly patients. Although age stratification for identifying acute HF might be expected to potentially increase the risk for a higher proportion of older subjects falling below the cut-points identifying acute HF, but above the cut-point excluding the diagnosis (a phenomenon referred to as the 'grey zone' for natriuretic peptides), our data demonstrate that in fact the overall incidence of a 'grey zone' diagnosis was only

the risk associated with persistent post-treatment elevation of NT-proBNP[23,24] and were restricted to a relatively small number of subjects. In one study, baseline NT-proBNP levels did not appear to predict short-term hazard.[24] In contrast, our study is more powered for such an analysis and demonstrates the importance of NT-proBNP concentration at presentation: although NT-proBNP was nearly universally elevated among patients with acute HF, among all factors analysed, marked elevation of NT-proBNP (essentially just above the median NT-proBNP concentration in our HF patients) was the single strongest predictor of death by just slightly longer than 2 months from presentation. Our data thus establish the importance of NT-proBNP at presentation not only for diagnosis, but also for simultaneous short-term risk assessment in acute HF.

With data now supportive of the utility of NT-proBNP in a wide variety of cardiovascular states, the importance of this marker is established. Although comparative studies are limited in number,[8,25,26] both NT-proBNP and BNP appear to deliver important diagnostic and prognostic information in a wide variety of patient types; the choice of which marker to use should be based on the differences in analytical performance, the needs of the institution utilizing the assays, and individual clinician comfort with the results from the assays.

Limitations of our study include the fact as a pooled analysis it lacks pre-defined endpoints, despite the similar designs and goals of the respective data sources. In this setting, the possi-