N-terminal brain natriuretic peptide and subsequent hospital admission for worsening heart failure

M R Cowie, C Metcalfe, K F Fox, G C Sutton

RESULTS

From the 332 patients enrolled, 110 samples were available for NT-proBNP measurement. Samples were not available from the other patients because of early death, refusal to have blood taken, and technical failures. Seventy one patients were male, median age was 75 years (range 49–91 years), CAD was the aetiology in 40 patients, 98 patients had impaired left ventricular systolic function, and 59 patients were NYHA rating IV at the time of first presentation. While males (65% v 54%) were over-represented, the subsample with NT-proBNP measurements was otherwise comparable to the whole study cohort. Median concentration of NT-proBNP was 637 pg/ml (90% range 110–3510 pg/ml).

Thirty patients had an unplanned admission for worsening heart failure during follow up and 17 died before such an admission. The results (table 1) show no evidence for an association between NT-proBNP concentration and subsequent hospitalisation. By contrast, despite the small number of deaths occurring without prior admission, there was strong evidence of an association between higher NT-proBNP and an increasing risk of death. The trend towards a greater hazard of the combined outcome of hospitalisation or death with higher NT-proBNP is because of the association with death.

DISCUSSION

Our results suggest that the previous study may have overestimated the relation between NT-proBNP and the subsequent risk of hospitalisation for worsening heart failure. This discrepancy may have arisen because our study is of a population based cohort of acutely ill patients with heart failure arising from a number of different aetiologies and a wide range of disease severity. Perhaps there is a stronger association in patients with specific aetiologies, such as CAD. Alternatively, the timing of NT-proBNP measurement may be an important factor in maximising its predictive value for subsequent hospitalisation. While in our study NT-proBNP was measured shortly after first diagnosis, in the study by Richards and colleagues, patients were enrolled, and their NT-proBNP measured when they were in a stable state. A recent study has addressed this issue directly, comparing measurements of NT-proBNP made on arrival at, and on discharge from, a coronary care unit. Both measurements were available for 34 patients, who subsequently experienced 19 events (death, hospital admissions for heart failure, or worsening heart failure without hospitalisation). With both measurements included in the same regression analysis, only the pre-discharge concentration of NT-proBNP was independently associated with the composite outcome. This limited evidence suggests that if the objective is to identify patients at risk of hospitalisation, measurement of NT-proBNP at discharge may be the most relevant.

Abbreviations: BNP, brain natriuretic peptide; CAD, coronary artery disease; NYHA, New York Heart Association; NT-proBNP, N-terminal brain natriuretic peptide
Imaging studies are crucial in assessing the extent of the disease and planning the appropriate treatment. These studies can reveal the presence of calcification or plaque build-up in the blood vessels, which may not be visible on physical examination alone.

In conclusion, imaging studies are a vital component of the diagnostic pathway for carotid artery disease. They provide essential information that guides therapy and helps in the accurate assessment of the patient's disease status.
N-terminal brain natriuretic peptide and subsequent hospital admission for worsening heart failure

M R Cowie, C Metcalfe, K F Fox and G C Sutton

*Heart* 2005 91: 371-372
doi: 10.1136/hrt.2003.030650

Updated information and services can be found at:
http://heart.bmj.com/content/91/3/371

**References**

This article cites 5 articles, 2 of which you can access for free at:
http://heart.bmj.com/content/91/3/371#BIBL

**Email alerting service**

Receive free email alerts when new articles cite this article. Sign up in the box at the top right corner of the online article.

**Topic Collections**

Articles on similar topics can be found in the following collections

- Drugs: cardiovascular system (8842)
- Epidemiology (3752)
- Health policy (225)

**Notes**