Cardiovascular disease

NT-proBNP is a powerful prognostic factor in all patients with heart failure

NT-proBNP can be used to stratify risk in patients with heart failure regardless of the ejection fraction, a study in *Heart* has shown.

The Korean Heart Failure registry is a prospective multicentre cohort study of consecutive patients hospitalised for acute heart failure.

Patients with borderline ejection fraction (41-49%) were excluded from the analysis leaving 528 with an ejection fraction ≥ 50%, categorised as heart failure with preserved ejection fraction (HFpEF), and 1,142 with an ejection fraction ≤ 40% categorised as heart failure with reduced ejection fraction (HFrEF). The median age of patients was 70 and just under half were men.

Patients with HFpEF had a significantly lower median NT-proBNP level than those with HfrEF: 2,723 vs 5,644 ng/L, P < 0.001.

Event rates did not differ between the HFpEF and HFrEF groups either in terms of death from any cause 11.6% vs 13.1%; HR 0.90 (95% CI: 0.67-1.21; P = 0.471) or the composite of death or HF readmission at one year 26.2% vs 29.4%; HR 0.89 (95% CI: 0.73-1.08; P = 0.225).

High levels of NT-proBNP were significantly associated with poor outcomes but interestingly the relationship was the same in both groups. A 10-fold increase in NT-proBNP was associated with a three times higher risk for mortality in both HFpEF and HFrEF.

NT-proBNP is commonly used as a tool to ascertain whether a patient's symptoms may be caused by cardiac failure and therefore require further investigation with echocardiography. NT-proBNP is also a reliable prognostic factor in patients with heart failure. However, it has not been clear if there is a difference between this prognostic predictive power in HFpEF compared with HFrEF. Although patients with both types of heart failure show similar survival patterns those with a preserved ejection fraction typically have lower natriuretic peptide values than patients with a reduced ejection fraction.

The authors concluded that NT-proBNP is a powerful prognostic factor in both HFpEF and HFrEF. Although patients with HFpEF have lower NT-proBNP levels, the prognosis of a patient with HFpEF expected from a given NT-proBNP level is similar to those with HFrEF.

This study further supports the use of the biomarker NT-proBNP as a tool to stratify risk in patients with heart failure regardless of the ejection fraction.

DR PETER SAVILL

Kang S-H, Park JJ, Choi D-J et al. Prognostic value of NT-proBNP in heart failure with preserved versus reduced EF. *Heart* 2015;101:1881-1888

Urology

Can NSAIDs reduce the need for antibiotics in UTI in women?

Although initial treatment of urinary tract infection (UTI) with ibuprofen reduced the use of antibiotics, women had a greater symptom burden and a higher risk of pyelonephritis than those treated with antibiotics from the outset, a primary care study from Germany has found.

A total of 494 women aged 18-65 years, presenting with typical symptoms of UTI were studied. Of these 246 were randomised to a single dose of fosfomycin 3 g and 248 to ibuprofen (400 mg tds) for three days. Additional antibiotics were subsequently prescribed to patients in both groups for persistent, worsening or recurrent symptoms.

The primary endpoints were the number of antibiotic courses in the first month, and the burden of symptoms in the first week.

The total number of antibiotic courses prescribed in the fosfomycin group was 283 (243 as part of the study; 34 further courses for UTI and six courses for other indications). The respective number in the ibuprofen group was 94 (81 for UTI and 13 for other reasons). While significantly more women in the ibuprofen group received antibiotics in the follow-up period (21.2%), the total number of antibiotic courses was 64% lower (P < 0.001).

In the ibuprofen group, total symptom burden was higher on days 0-4, and on days 0-7 for all individual symptoms. Symptoms also lasted a day longer, with a mean »

duration of 5.6 days, in the ibuprofen group. These women also had higher scores for impairment of activity, e.g. restriction of work or regular activities.

Complication rates were higher, with five cases of pyelonephritis in the ibuprofen group compared with one in the fosfomycin group (P = 0.12).

Both groups had similar rates of recurrent UTI.

Two-thirds of the women in the ibuprofen group recovered without antibiotic treatment. However, within a month, 34% of the women in the ibuprofen group received antibiotics for persistent or worsening symptoms compared with 14% in the fosfomycin group.

Although this strategy appears to be successful in reducing antibiotic prescribing, it comes at a cost to the women involved, of more significant symptoms, for a longer duration, with greater impact on their lives and a higher risk of upper urinary tract complications.

Thus, it is difficult to conclude that this approach should be recommended for all women with uncomplicated UTI in primary care.

Most GPs would feel that women presenting with a simple UTI need an antibiotic, and the vast majority of women will leave their appointment with a prescription. Indeed, it is estimated that 25% of antibiotic prescriptions in primary care are for uncomplicated UTI.

The findings from this study clearly suggest that treatment with an NSAID is an option for some patients, perhaps those with less intrusive symptoms, or who have expressed a strong desire to avoid antibiotics where possible.

However, trials in primary care are still needed to look at this strategy in more detail, to assist GPs in deciding the best treatment strategy for individual patients.

DR JONATHAN REES

Gagyor I, Bleidorn J, Kochen MM et al. Ibuprofen versus fosfomycin for uncomplicated urinary tract infection in women: randomised controlled trial. *BMJ* 2015;351:h6544

Paediatrics

Survivors of childhood cancer at increased risk of autoimmune diseases

A Scandinavian study of survivors of childhood cancer has found a significantly higher incidence of a range of autoimmune disorders compared with matched controls.

Using Denmark, Iceland and Sweden's comprehensive national cancer and hospital episode recording registries 20,361 survivors of cancer diagnosed before the age of 20 were identified. These individuals were matched with 125,794 controls selected from national population registers. The median follow-up was 15 years for survivors and 19 years for controls (range 0-42 years for both).

Just over a third (34.2%) of cancer survivors had a history of leukaemia or lymphoma and a quarter (24.8%) CNS neoplasms. The figures for renal, bone, soft tissue tumours and retinoblastoma were: 4.2%, 4.9%, 6.0% and 2.4% respectively.

Overall, cancer survivors were more likely than controls to develop an autoimmune disease. The standardised hospitalisation rate ratio (SHRR) was 1.4 (95% CI: 1.3-1.5). This equated to an absolute excess risk of 67 per 100,000 person-years compared with controls. The ratio was highest within five years of diagnosis 2.5 (95% CI: 2.1-3.0) and decreased steadily with time but still remained slightly, but statistically significantly, raised 20-29 years after diagnosis.

The specific disorders seen significantly more commonly in survivors included:

- Autoimmune haemolytic anaemia (SHRR = 16.2)
- Addison's disease (13.8)
- Polyarteritis nodosa (5.8)
- Chronic rheumatic heart disease (4.5)
- Idiopathic thrombocytopaenic purpura (3.4)
- Hashimoto's thyroiditis (3.0)
- Sjögren's syndrome (2.0)
- Type 1 diabetes (1.6)

The cancers most associated significantly with subsequent autoimmune disorder were:

- Leukaemia (SHRR = 1.6)
- Hodgkin's lymphoma (1.6)
- Renal tumours (1.6)
- CNS neoplasms (1.4)

The results of treatment for a range of paediatric cancers has improved dramatically over recent years with overall five-year survival rates of 70-82% across Europe between 2005 and 2007.[1] However, these gains have not been without cost.

Autoimmune disorders do appear to occur more commonly in survivors of childhood cancer especially in the first few years after diagnosis.

The absolute excess risk of autoimmune disease does not appear to be large but the link is worth bearing in mind during consultations with survivors of childhood cancer.

'Cure is no longer a sufficient goal in childhood cancer care. As the vast majority of these patients survive, attention must be paid to their long-term quality of life and health challenges,' the study authors conclude.

DR CHRIS BARCLAY

Holmqvist AS, Olsen JH, Mellemkjaer L et al. Autoimmune diseases in adult life after childhood cancer in Scandinavia (ALiCCS). *Ann Rheum Dis* 2015;0:1-8. doi:10.1136/annrheumdis-2015-207659

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