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FEATURED CORRESPONDENCE

Heart-type fatty acid-binding protein in the early diagnosis of acute myocardial infarction: a systematic review and meta-analysis

To the Editor We read with interest the systematic review and meta-analysis by Bruins Slot *et al* concerning early diagnosis of myocardial infarction (MI) using heart-type fatty acid-binding protein (H-FABP).¹ We agree with their summary that when used in isolation, H-FABP may not offer a diagnostic advantage over the current troponin standard. However, it should be noted that in five of the included studies constituting 1573 patients (42% of the pooled cohort), no information on symptom duration was available. As the release kinetic profile of H-FABP results in a rapid rise in serum concentrations from 2 to 4 h after symptom onset, underlying its promise as a very early marker of MI, inclusion of these studies may significantly skew the results in favour of troponin.

The authors also state that H-FABP use would result in 16% of cases being labelled false positive. It must be realised that a so-called false-positive result is not unique to H-FABP. Reichlin *et al* have shown that, on presentation, the positive predictive values of four highly sensitive troponin assays ranged from only 0.5 to 0.73, indicating a significant proportion of 'false-positive' results compared with a gold standard of final diagnosis (determined by fourth-generation troponin and clinical consensus).²

We also need to understand whether positive H-FABP in the absence of ACC/ESC-diagnosed MI actually represents a false-positive result. The large investigation by Kilcullen *et al* showed that troponin-negative patients who are H-FABP positive are at a higher risk of death than patients who are troponin positive in isolation.³ McCann *et al* have also demonstrated a similar adverse prognostic association of H-FABP with death, independent of troponin, NT-Pro-BNP and clinical parameters in consecutive chest pain patients.⁴ We suggest H-FABP is not solely a very early biomarker of cell necrosis and identifies patients at higher risk of cardiac events, who may benefit from more intensive inpatient management and that further studies are warranted to improve assessment of patients presenting early after the onset of acute chest pain to the emergency department.

James A Shand, David J McEneaney, Ian B Menown

Craigavon Area Hospital, Portadown, Northern Ireland, UK

Correspondence to Dr James A Shand, Craigavon Area Hospital, 68 Lurgan Road, Portadown, Northern Ireland, UK; james.shand@doctors.org.uk

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The Authors' reply We thank Shand *et al* for their comments¹ on our systematic review and meta-analysis.²

We agree with Shand *et al* that when assessing the diagnostic value of heart-type fatty acid-binding protein (H-FABP), it should be measured in the relevant time interval (ie, 1–24 h after the onset of complaints). Because H-FABP is a sensitive early marker of myocardial necrosis, it can have major advantages over troponin within the first 6 h after symptom onset, when troponin can still be negative. As suggested by Shand *et al*, we performed a new, separate analysis of the studies in our meta-analysis that took into account the duration of symptoms. After stratification (duration in ≤ 6 h vs > 6 h), sensitivity (0.79; 95% CI 0.68 to 0.87 vs 0.88; 95% CI 0.76 to 0.95) and specificity (0.83; 95% CI 0.77 to 0.88 vs 0.85; 95% CI 0.68 to 0.94) were somewhat lower in the early hours. These findings show that H-FABP differs from 'classic' troponin, which clearly has a lower diagnostic performance in the early hours as compared with >6 -h period after symptom onset. This re-analysis, however, did in no sense confirm the 'skewing of results in favour of troponin', as was suggested.

Shand *et al* doubt whether 16% false positives with H-FABP are indeed false positive. Our study focused on the diagnostic value of H-FABP, and its possible prognostic value was beyond the scope of our study. We agree with the opinion of Shand *et al* to come to a better differentiation in patients with an acute coronary syndrome (ACS) who do not show a troponin rise compatible with necrosis and who therefore according to the current definition do not have a myocardial infarction.^{3,4} H-FABP could indeed be helpful to further risk stratify

these patients and to improve the selection of those patients who need a direct invasive strategy, depending on the level of H-FABP and on whether ischaemia is refractory or inducible.⁴ Studies are needed to further elucidate in which patients an invasive strategy is preferred over a more conservative strategy, including optimal drug therapy.^{3,4} Before the results of such studies are known, it is unwise however to challenge the reference standard for myocardial infarction, the more, because nowadays this standard helps clinicians to risk-stratify patients who are most likely to benefit from direct invasive intervention.^{3,4}

Madeleine Bruins Slot,¹ Frans Rutten,¹ Hans Reitsma,² Geert van der Heijden,¹ Arno W Hoes¹

¹University Medical Center Utrecht, Julius Center for Health Sciences and Primary Care, Utrecht, the Netherlands; ²Department of Clinical Epidemiology and Biostatistics, University of Amsterdam, AMC, the Netherlands

Correspondence to Madeleine Bruins Slot, University Medical Center Utrecht, Julius Center, PO Box 85500, 3508 GA Utrecht, the Netherlands; m.h.e.bruinslot@umcutrecht.nl

Competing interests None.

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CORRECTION

doi:10.1136/hrt.2010.214999corr1

Al-Mohammad A, Mant J. The diagnosis and management of chronic heart failure: review following the publication of the NICE guidelines. *Heart* 2011;**97**:411–416. The last sentence of the third paragraph should be "Hospitalised patients with heart failure have a 10% inpatient mortality rate, and up to 32% mortality rate at 1 year." Not "up to 50%" as first published erroneously.



Madeleine Bruins Slot, Frans Rutten, Hans Reitsma, et al.

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