Low risk chest pain? Make the negative a positive

Christopher Zeitz[1], Angus Baumann[2]

Emergency department presentations are opportunities to discuss cardiovascular risk factors while the patient's awareness of their importance is heightened

Among the most frequent emergency department presentations are those by people with chest pain. Current practice ensures that those at high risk of acute myocardial infarction (AMI) are rapidly identified and managed. Apart from biomarkers of cardiac disease,[1] a number of algorithms assist the risk stratification of patients without AMI. The current move to rapidly excluding AMI on the basis of high sensitivity cardiac biomarkers, often followed by discharge of patients without further investigation or management, is based on the perceived low risk of adverse events in the immediate future.

In this issue of the *MJA*, Greenslade and colleagues report their investigation of the safety and reliability of ruling out AMI in Indigenous Australians presenting to an emergency department with chest symptoms on the basis of a single high sensitivity cardiac troponin I (hs-cTnI) measurement.[2] As people from different ethnic groups can have different disease patterns and even different responses to therapies,[3,4] it is important to ensure that care guidelines are applicable to all patients. Although the patients in the study by Author and colleagues had a high burden of cardiovascular risk factors — 31 of 110 (28%) had previously experienced AMI — none of 30 people with single hs-cTnI values below 4 ng/L experienced cardiovascular events in the 30 days following discharge. This important observation provides direct evidence that a single hs-cTnI result-based approach is as safe for Indigenous patients as for other Australians.

However, this finding should be interpreted with caution. hs-cTnI assays are not always readily accessible. A large proportion of Indigenous Australians live in rural and remote areas where less accurate, rapid bedside troponin testing is used. Although convenient for detecting a risk of cardiovascular events early, it should not be assumed that the results or sensitivity of these tests are equivalent to those of hs-cTnI assays. This raises questions about how broadly relevant single hs-cTnI testing might be for many Indigenous patients: do the potential benefits for the patient and health care system require that hs-cTnI assays become the standard of care, including in rural and remote Australia?

Further, cardiac troponin is not the only biomarker of acute, active ischaemia. When patients have other high risk features or their clinical history is particularly concerning, they should not be managed as being at low risk on the basis of a single hs-cTnI assay result alone.

Reasons for rapidly identifying patients at low cardiovascular risk, apart from excluding AMI, include the desire to reduce their emergency department length of stay and to avoid unnecessary testing. However, the presence of cardiovascular risk factors at a young age in Indigenous people is not unusual,[5] as reflected by the updated Australian Heart Foundation guidelines,[6] and a negative hs-cTnI result is less likely to indicate low cardiovascular risk over a period longer than 30 days than for other Australians. Many patients discharged from the emergency department with negative cardiac biomarker results have coronary artery disease,[7] with the possibility of vulnerable plaques developing and rupturing. That this does not occur during the index presentation does not mean that it cannot in the future. Rather than rapidly discharging patients with "non-cardiac pain", the emergency department presentation should be seen as an opportunity to assess and manage cardiovascular risk factors while the patient's awareness of their importance is heightened. Early discharge of patients at low risk is possible, but it is also appropriate and important to discuss their cardiovascular risk both immediately and during follow-up in primary care.

We should perhaps re-think the emergency department paradigm regarding troponin-negative chest pain. A proactive strategy that identifies and assists patients to modify risk may prevent future cardiac events. This could involve quantifying plaque with computed tomography coronary angiography (CTCA) or educating patients about risk factor modification.

The greater the burden of risk in the population from which a person comes, the greater the potential for improving their health outcomes. Is this the role of an emergency department? It is the role of all clinicians to promote good health! Some patients discharged with low risk chest pain feel that they have wasted the hospital's time. If they instead felt that they had avoided a cardiac event on this occasion, but could take steps to reduce their risk further, the experience might have a more

[1]Executive Office, Central Adelaide Local Health Network, Adelaide, SA. [2]Alice Springs Hospital, Alice Springs, NT. christopher.zeitz@adelaide.edu.au • doi: 10.5694/mja2.51599 • See Research (Greenslade)

positive impact on their health and increase the likelihood of their seeking treatment for future events.

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