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DIAGNOSIS

Novel protocol for risk assessment of patients with chest pain

An international team of researchers has developed and validated a 2 h diagnostic protocol to identify patients presenting with chest pain who are at low risk of experiencing a cardiac event. "Data have been published on 2 h pathways without prospective validation," explains Dr Martin Than, who was one of the Asia–Pacific Evaluation of Chest Pain Trial (ASPECT) investigators. "I was anxious to integrate structured pretest probability estimation into the assessment."

Examination of patients with chest pain can be a lengthy process. The ACC/AHA guidelines recommend that cardiac troponins be measured serially over a period of at least 6 h from the onset of symptoms and many people are admitted as inpatients. In addition, these patients are often seen by junior doctors with limited experience of applying clinical risk predictors in undifferentiated populations, such as those seen in the emergency department. However, a substantial proportion of patients who undergo assessment for causes of chest pain are not diagnosed with acute coronary syndromes. Evidently, a need exists for strategies to improve the speed and accuracy of the diagnostic work-up, so as to identify very-low-risk patients who could be discharged quickly, thereby reducing hospital overcrowding and financial costs.

ASPECT was a prospective, observational study conducted in China, Singapore, Taiwan, Thailand, Indonesia, South Korea, India, Australia, and New Zealand, ensuring that the protocol would be tested in hospitals with varying facilities and in patients from diverse ethnic backgrounds. The protocol incorporated point-of-care biomarker testing (troponin I, creatine kinase MB, and myoglobin), Thrombolysis in Myocardial Infarction (TIMI) risk score calculation, and electrocardiography. Blood was drawn for biomarker assessment at presentation and 2 h afterwards. The primary end point was the occurrence of a major cardiac event at 30 days after presentation. Importantly, the protocol was not used to direct patient management.

The diagnostic protocol identified 352 of 3,582 individuals (9.8%) who were at low risk of experiencing a cardiac events. These patients potentially could have been discharged early, saving an average of 43.2 h (or 1–2 bed days) of hospital time. Of these patients, only three (0.9%) actually had a cardiac event within 30 days. Therefore, the protocol was highly sensitive (99.3%) for the identification of low-risk patients.

Work on the protocol continues; "we are half way through a 500 patient pragmatic randomized controlled trial that will test economic benefit ... [and] we are developing a new risk assessment to to replace TIMI," says Dr Than. "We hope that ... this will allow the early discharge of many more patients."

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Original article Than, M. *et al*. A 2-h diagnostic protocol to assess patients with chest pain symptoms in the Asia–Pacific region (ASPECT): a prospective observational validation study. *Lancet* doi:10.1016/S0140-6736(11)60310-3