Rapid diagnosis protocol for chest pain does not improve outcomes

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Discharge of patients with suspected acute coronary syndromes under a 0- and 1-hour high-sensitivity cardiac troponin T (hs-cTnT) protocol is safe, according to late breaking results from the RAPID-TnT trial presented in a Hot Line Session today at ESC Congress 2019 together with the World Congress of Cardiology and published in Circulation.The trial also found that better strategies are needed to optimise outcomes in patients newly diagnosed with modest troponin elevations.

Patients with chest pain were traditionally kept in the emergency room for long periods until judged safe to send home. To speed up the decision for safe discharge or rapid treatment, ESC guidelines recommend a 0/1-hour hs-cTnT protocol for patients with suspected non-ST-segment elevation myocardial infarction (NSTEMI).

0/1-hour refers to the time from the first blood test. NSTEMI can be ruled-out at presentation if the hs-cTnT concentration is very low. NSTEMI can also be ruled-out if baseline levels are low and there is no increase within 1 hour. Patients have a high likelihood of NSTEMI if the hs-cTnT concentration at baseline is at least moderately elevated or hs-cTnT concentrations show a clear rise within the first hour.

Previous evidence for this strategy is based on observational studies. The RAPID-TnT trial investigated the safety and clinical effectiveness of a 0/1-hour protocol of troponin T reported to high-sensitivity levels versus the usual practice of cardiac troponin testing reported to previous sensitivity levels at 0, 3, and potentially 6 hours in a randomised trial prospectively embedded within care for patients with suspected acute coronary syndrome.

A total of 3,288 patients with suspected acute coronary syndrome were randomly allocated to the guideline-recommended 0/1-hour hs-cTnT protocol or the 0/3-hour troponin protocol. The primary composite endpoint was all-cause death and new/recurrent myocardial infarction within 30 days of randomisation.

The 0/1-hour hs-cTnT protocol was non-inferior with respect to the primary endpoint of death or myocardial infarction at 30 days. The 0/1-hour strategy was associated with less subsequent functional (stress) testing but more angiography and revascularisation. Compared to the 0/3-hour arm, patients in the 0/1-hour arm were significantly less likely to be admitted (45.5 percent versus 33.2 percent) and had a significantly shorter length of stay (5.6 versus 4.6 hours).

Principal investigator Professor Derek Chew of Flinders University, Adelaide, Australia said: "Use of a 0/1-hour protocol for discharge is safe, since patients receiving a 'rule-out' recommendation had a low rate of events by 30 days (less than 1 percent). In patients recommended for further observation or 'rule-in' (possible acute coronary syndrome), there were more investigations and revascularisation associated with more acute myocardial injury or myocardial infarction related to these procedures."

Regarding which protocol should be used as standard in clinical practice, Prof Chew said: "The 0/1-hour strategy can be used to reduce crowding in the emergency department. Better strategies for the increased numbers of patients who are 'ruled-in' with this method will be required if we are to improve overall outcomes. The 12-month results from this study will help judge the true value of high-sensitivity troponin testing in clinical practice."

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