

Prospective validation of 0-hour/1-hour algorithm using high-sensitivity cardiac troponin I in Japanese patients presenting to emergency department

H. Ohtake, J. Ishii, H. Nishimura, H. Kawai, T. Muramatsu, M. Harada, S. Motoyama, E. Watanabe, Y. Ozaki, M. Iwata

Fujita Health University, Toyoake, Japan

Funding Acknowledgement: Type of funding source: None

Background: The diagnostic performance of 0-hour/1-hour algorithm using high-sensitivity cardiac troponin I (hsTnI) for non-ST-segment elevation myocardial infarction (NSTEMI) has not been evaluated in an Asian population.

Purpose: We aimed to prospectively validate the 0-hour/1-hour algorithm using hsTnI in a Japanese population.

Method: We enrolled 754 Japanese patients (mean age of 70 years, 395 men) presenting to our emergency department with symptoms suggestive of NSTEMI. The hsTnI concentration was measured using the Siemens ADVIA Centaur hsTnI assay at presentation and after 1 hour. Patients were divided into three groups according to the algorithm: hsTnI below 3 ng/L (only applicable if chest pain onset >3 hours) or below 6 ng/L and delta 1 hour below 3 ng/L were the "rule-out" group; hsTnI at least 120 ng/L or delta 1 hour at least 12 ng/L were in the "rule-in" group; the remaining patients

were classified as the "observe" group. Based on the Fourth Universal Definition of Myocardial Infarction, the final diagnosis was adjudicated by 2 independent cardiologists using all available information, including coronary angiography, coronary computed tomography, and follow-up data. Safety of rule-out was quantified by the negative predictive value (NPV) for NSTEMI, accuracy of rule-in by the positive predictive value (PPV), and overall efficacy by the proportion of patients triaged towards rule-out or rule-in within 1 hour.

Results: Prevalence of NSTEMI was 6.5%. The safety of rule-out (NPV 100%), accuracy of rule-in (PPV 26%), and overall efficacy (54%) were shown in Figure.

Conclusion: The 0-hour/1-hour algorithm using hsTnI is very safe and effective in triaging Japanese patients with suspected NSTEMI.

