P2677

A combination of HEART score and a 0-hour/1-hour algorithm for early and safe triage tool for patients in observe zone

M. Shiozaki[1], K. Inoue[1], S. Suwa[2], C.C. Lee[3], S.J. Chiang[4], M. Shimizu[1], K. Fukuda[1], M. Hiki[1], N. Kubota[1], H. Tamura[1], Y. Fujiwara[1], M. Sumiyoshi[1], H. Daida[5]

[1]Juntendo University Nerima Hospital, Tokyo, Japan; [2]Juntendo University Shizuoka Hospital, Cardiology, Shizuoka, Japan; [3]National Taiwan University Hospital, Emergency Medicine, Taipei, Taiwan; [4]Taipei City Hospital, Taipei, Taiwan; [5]Juntendo University School of Medicine, Tokyo, Japan

Funding Acknowledgement: JSPS KAKENHI Grant Number JP18K09554

Background: The European Society Cardiology guidelines recommend that a 0-hour/1-hour (0–1hr) algorithm using high sensitivity cardiac troponin T (hs-cTnT) improves the early triage of patients with suspected non-ST elevation acute coronary syndrome (NSTE-ACS). However, diagnostic uncertainty remains in the 25–30% of patients assigned to "observe" group.

Purpose: To establish a step wise risk score system using HEART score and 0-hour/1-hour algorithm to identify the low risk group from observation group.

Methods: This study was a prospective, multi-center, observational study of patients with suspected NSTE-ACS admitted to five hospitals in Japan and Taiwan from 2014 to 2018, respectively. We applied the algorithm and calculated HEART score simultaneously. Patients were divided into three groups according to the algorithm: hs-cTnT below 12 ng/L and delta 1 hour below 3 ng/L were the "rule out" group; hs-cTnT at least 52 ng/L or delta 1 hour at least 5 ng/L were in the "rule in" group; the remaining patients were classified as the "observe" group. All patients underwent a clinical assessment the included medical history, physical examination, 12-lead ECG, continuous ECG monitoring, pulse oximetry, standard blood test, chest radiography, cardiac and abdominal ultrasonography. Patients presenting with congestive heart failure, terminal kidney disease on hemodialysis state, arrhythmia, or infection disease (which causes to increase troponin level) were excluded. Thirty-day MACE was defined as acute myocardial infarction, unstable angina (UA), or death.

Results: Of the 1,332 patients enrolled, 933 patients were analyzed after exclusion. NSTE-ACS was the final diagnosis for 122 (13.1%) patients and none of death. The HEART score less than 4 points in observation groups identified as very low risk with a negative predictive value (NPV) of 98.1% (95% confidential interval (CI); 90.1%-100%) and sensitivity of 98.0% (95% CI; 89.6%-100%). There were only one patient (0.5%) with AMI. In case of the HEART score less than 5 points, it could also identify as very low risk with a NPV of 96.7% (95% CI; 90.8%-99.3%%) and sensitivity of 94.1% (95% CI; 83.8%-98.8%). There were only three patients (1.2%) with AMI.

Conclusion: A combination of HEART score and the 0-hour/1-hour algorithm strategy rapidly identified the patient in observation group of 30-day MACE including UA where nor further cardiac testing would be needed.