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The European Society of Cardiology 0 h/1 h Algorithm and the HEART Score for Rule-in and Rule-out of Major Adverse Cardiac Events: Implementation in the Emergency Department.

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Purpose:

The European Society of Cardiology (ESC) 0 h/1 h algorithm is the preferred diagnostic strategy for rule-in and rule-out of myocardial infarction (MI) for chest pain patients in the emergency department (ED). It is suggested that adding clinical information to the algorithm improves its diagnostic performance. This study evaluates implementation of the ESC 0 h/1 h algorithm in the ED and investigates the potential advantages of combining it with a clinical decision rule.

Methods:

In this prospective cohort study, undifferentiated chest pain patients in whom the ESC 0 h/1 h algorithm was applied were enrolled. Components of the HEART score were collected. The diagnostic characteristics were determined for the algorithm with and without addition of the HEART score. The primary and secondary endpoints were the occurrence of major adverse cardiac events (MACE) at presentation and during 30 days follow-up, respectively. MACE included MI, death and revascularization.

Results:

A total of 668 patients were enrolled from April 2019 through February 2020. The rule-in category and rule-out category consisted of 8.5% and 54.8% of the patients, respectively. Positive predictive value for (30-days) MACE of the rule-in category was 63.2% and rose to 70.4% after addition of the HEART score. Negative predictive value for (30-days) MACE of the rule-out category was 98.1% and rose to 100% after addition of the HEART score.

Keywords:

ESC 0 h/1 h algorithm, HEART score, Myocardial infarction

Figure:

30-days follow-up in the rule-in, observe and rule-out categories of the ESC 0 h/1 h algorithm in combination with the HEART score. MACE = Major Adverse Cardiac Events, MI = Myocardial Infarction.

