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Real-world outcome of applying the ESC 0/1-hour algorithm in clinical routine

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Background: The European Society of Cardiology (ESC) recommends the use of a 0/1h-algorithm for rapid triage of patients with suspected non-ST-elevation myocardial infarction (NSTEMI). To date, its impact on patient management and ultimately also safety when routinely applied in emergency departments (ED) is unknown. We therefore aimed to determine these important real-world outcome data.
Methods: In a prospective international multicenter study enrolling unselected patients presenting with suspected NSTEMI to the ED, we assessed the real-world feasibility, adherence, efficacy, effectiveness, and safety of the ESC 0/1h-algorithm using high-sensitivity cardiac troponin T embedded in routine clinical care. Patients with ST-segment elevation myocardial infarctions were excluded. Safety was quantified by the 30-day incidence of major adverse cardiac events (MACE, defined as the composite of cardiovascular death and myocardial infarction including the index event) in the rule-out group and in outpatients.
Results: Among 2296 patients, NSTEMI prevalence was 9.8% (224/2296). Feasibility was very high with a median time to the "1h-draw" of 65 minutes [q1 61, q3 72]. Adherence was very high with 94% (95% confidence interval [CI], 93–95) of patients managed without protocol violations. Effectiveness was very high: 98% (95% CI, 97–98) of patients triaged towards rule-out by the ESC 0/1h-algorithm did not require additional cardiac investigations including hs-cTnT measurements at later time points (e.g. 3–12h) or coronary CT-angiography in the ED. Median time to discharge from the ED was 150 [q1134, q3235] minutes in the overall population. The ESC 0/1h-algorithm triaged 62% (95% CI, 60–64) of patients towards rule-out and 13% (95% CI, 12–14) towards rule-in of NSTEMI. Overall, 71% (95% CI, 69–72) of patients underwent outpatient management (Figure 1). Safety of rule-out and outpatient management were very high with a 30-day MACE incidence of 0.2% (95% CI, 0–0.5) and 0.1% (95% CI, 0–0.2), respectively. These findings were consistent in several predefined subgroups.
Conclusions: These real-world data document the excellent feasibility, adherence, effectiveness, efficacy and safety of the ESC 0/1h-algorithm for the rapid management of patients presenting with suspected NSTEMI to the ED when applied in routine clinical practice.

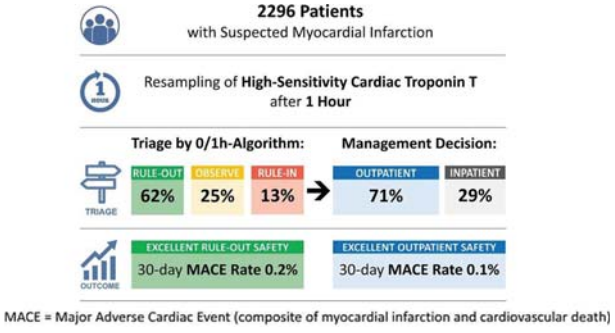

Figure 1