

Does the quality index of adherence to the evidence-based guidelines predict mortality in patients with myocardial infarction?

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Background: The SWEDEHEART quality index of hospitals' adherence to the evidence-based (EB) guidelines for myocardial infarction (MI) patients has been continuously used for several decades in Sweden. The grading protocol is based on the consensus among hospitals. The hospitals are awarded points (0, 0.5, 1) for each of the 11 indicators depending on the proportion of patients who received EB treatment and achieved treatment goals. The 11 indicators at present are reperfusion treatment in STEMI (yes/no), time to-reperfusion treatment in STEMI, time to revascularisation in NSTEMI, P2Y12 antagonists at discharge, ACE-inhibitor/ARB at discharge, the proportion of patients at follow-up, smoking cessation at one-year, participation in a physical exercise program, target LDL-cholesterol and target blood pressure at one year.

Purpose: To evaluate whether the SWEDEHEART quality index predicts mortality in patients with MI.

Methods: We used data for all MI patients reported to the SWEDEHEART registry from 72 hospitals in Sweden between 2015–2021. We calculated the difference in quality index between 2021 and 2015. The hospitals were divided into quintiles based on the difference in the score. Logistic regression with log-time offset was used to adjust for confounders (age, gender,

diabetes, hypertension, hyperlipidemia, STEMI/NSTEMI, cardiac arrest before admission, occupation status, history of heart failure, prior MI, prior PCI, prior CABG, cardiogenic shock).

Results: We identified 98,635 patients with MI, 32,608 (33.1%) were women and 34,198 (34.7%) had STEMI. The average age was 70.8±12.2 years. The median follow-up time was 2.7 years (IQR 1.06–4.63). The crude all-cause mortality rate was 5.5% at 30-days and 22.3% after long-term follow-up. Most hospitals (72.1%) improved their quality index on average by 3.4% per year ($P<0.001$). The increase in the quality index continued during COVID-19 pandemic (2020–2021) with average increase of 8.6%, 95% CI, 0.97–1.02; $P<0.001$. The median change in SWEDEHEART quality index score among the quintiles were –1.5 (Q1), 0.5 (Q2), 2.5 (Q3), 3 (Q4), and 4 (Q5). We found no difference in mortality between the quintiles at 30-days (OR 0.99; 95% CI 0.97–1.02; $p=1.02$) and long-term (OR 1.01; 95% CI 0.99–1.02; $p=0.850$).

Conclusion: The SWEDEHEART quality index provides valuable descriptive information about hospitals' adherence to the guidelines. However, the index, in its current form, does not predict mortality in patients with MI.