

Risk score may help identify patients at risk for sudden cardiac death after acute coronary syndrome

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In a study published online by *JAMA Cardiology*, Pierluigi Tricoci, M.D., Ph.D., M.H.S., of the Duke Clinical Research Institute, Durham, N.C., and colleagues assessed the cumulative incidence of sudden cardiac death (SCD) during long-term follow-up after non-ST-segment elevation acute coronary syndrome (NSTE ACS; a type of heart attack or unstable angina with certain findings on an electrocardiogram), and developed a risk model and risk score for SCD after NSTE ACS.

Improving management strategies to prevent SCD after an ACS requires an understanding of a patient's individual absolute risk. However, algorithms to assess individual [patients'](#) risks have not been developed. For this study, the researchers merged individual data from 4 multinational [randomized clinical trials](#) among patients presenting with an ACS. The cumulative incidence of SCD and cardiovascular death was examined according to time after NSTE ACS. Clinical factors at baseline and after the index event that were associated with SCD after NSTE ACS were identified. Baseline factors were used to develop a risk model.

Of the initial 48,286 patients in the analysis, 37,555 patients were enrolled after NSTE ACS. Among these, 2,109 deaths occurred after a median follow-up of 12.1 months. Of 1,640 cardiovascular deaths, 513 (31 percent) were SCD. At 6, 18, and 30 months, the cumulative incidence estimates of SCD were 0.8 percent, 1.7 percent, and 2.4

percent, respectively. The researchers found that certain clinical variables were significantly associated with SCD.

"We report 3 main findings of this analysis. First, in the current NSTEMI ACS therapeutic era, SCD occurs relatively infrequently at a rate of approximately 1 percent per year, yet it accounts for one-third of cardiovascular deaths observed during follow-up. Sudden cardiac death accrues continuously over time; its incidence does not plateau even after the first year from the acute event. Second, an SCD risk model consisting of commonly collected clinical variables, from which we derived a more user-friendly [risk score](#), can be used for risk stratification of SCD and identification of patients who are at higher risk for SCD. Third, recurrent events subsequent to the initial ACS presentation, in particular recurrent [heart attack](#) and rehospitalization, are associated with the risk for subsequent SCD," the authors write.

"Future research is needed to assess the implementation of drug- or device-based strategies that may reduce the risk for SCD in high-risk patients after NSTEMI ACS."

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