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CARDIOMYOPATHY

NEW SCD RISK PREDICTION MODEL

A new, validated model for predicting the risk of sudden cardiac death (SCD) in patients with hypertrophic cardiomyopathy (HCM) has been published. For every 16 patients who receive an implantable cardioverter–defibrillator (ICD) as a result of a 5-year SCD risk estimate ≥4%, the investigators predict that one death will be prevented at 5 years.

Current strategies for identifying patients with HCM who are at high risk of SCD are thought to overestimate risk. As a result, a substantial number of patients with HCM might be undergoing prophylactic ICD implantation unnecessarily. This inappropriate ICD implantation is of concern because approximately one-third of patients who receive an ICD will experience either an inappropriate shock or implant complications within 5 years. Therefore, O'Mahony *et al*. set out to develop a new SCD risk prediction model with the aim of improving the targeting of ICD implantation in patients with HCM.

The investigators used data from a retrospective, longitudinal cohort study of 3,675 patients evaluated at one of six European centres. Only adult patients (aged ≥16 years) without metabolic diseases or syndromic causes of HCM, and without a history of ventricular fibrillation or ventricular tachycardia were included. Patients were followed up for a total of 24,313 patient years (median 5.7 years). The annual rate of SCD, aborted SCD, or appropriate ICD shock was 0.81%, and the 5-year cumulative incidence of this end point was 3.8%.

Age, family history of SCD, left atrial diameter, maximal left ventricular (LV) wall thickness, maximal LV outflow tract gradient, nonsustained ventricular tachycardia, and unexplained syncope were significantly associated with SCD in the study cohort, and all seven factors were incorporated into the 5-year risk calculation. The calibration slope was 0.91, C-index was 0.70, and D-statistic was 1.07 in bootstrapping validation. External validation produced similar results.

The investigators warn that "no risk stratification strategy will ever be able to predict SCD with absolute certainty and the risk prediction model should be used by physicians experienced in the management of the condition". They also point out that "the model should only be used in patients with similar characteristics to the study cohort". A risk calculator will become available online at www.HCMRisk.org.

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Original article O'Mahony, C. *et al*. A novel clinical risk prediction model for sudden cardiac death in hypertrophic cardiomyopathy (HCM Risk-SCD). *Eur. Heart J.* doi:10.1093/eurheartj/eht439