Abstract: The MAGGIC score predicts heart failure-related death but not sudden cardiac death: an OBSERVO-ICD sub-analysis

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On behalf: AIAC

Topic(s):
Acute Heart Failure: Non-pharmacological Treatment

Citation:
Background: Predicting death in chronic heart failure with reduced LVEF (HFrEF) patients is difficult, and several prognostic risk scores have been developed, with the Seattle Heart Failure Model (SHFM) and the MAGGIC risk score being the most popular and validated. Modes of death in HFrEF patients have been changing with time. In particular, in HFrEF patients mortality for sudden cardiac death (SCD) has been decreasing in the last decades. These ongoing changes in modes of death significantly impact the performance of available prognostic risk scores. Recent research shows that HFrEF patients who unexpectedly die despite being estimated at low risk of death by prognostic scores suffer from unexpected SCD, which is notoriously not captured by available prognostic tools.

Purpose: the overall scope of this analysis is to evaluate competing modes of death in a population of HFrEF patients protected by SCD because of an ICD. In details, this analysis will: evaluate the performance of the MAGGIC risk score and how much this performance is altered by appropriate ICD interventions, as a proxy of SCD.

Methods: The OBSERVational registry On long-term outcome of ICD patients (OBSERVO-ICD, NCT02735811) is a multicenter, retrospective registry endorsed by the Italian Association of Arrhythmology and Cardiac Pacing (AIAC). It enrolled all consecutive patients aged = 18 years who underwent an ICD or CRT-D implant from the 1st of January 2010 to the 31st of December 2012 in one of the five participating high-volume arrhythmia centers. For the present analysis, only patients with HFrEF were included. HFrEF diagnosis was made according to current guidelines. The primary endpoint was a composite of death for all causes, heart transplant, and appropriate ICD intervention on a clinically significant arrhythmia.

Results: 1180 patients were included in the present analysis. During the follow-up (median 39 months; 1st-3rd IQR 29-50) 185 patients died (15.7%) died, while 27 (2.3%) underwent a heart transplant. 502 patients (50.3%) had a CRT implanted. Of all deaths, 81 (44%) were adjudicated as HF-related. 162 (13.7%) patients were appropriately treated with an ATP and 99 (8.3%) with a shock. The MAGGIC score AUC in predicting HF-related death is 0.71, while is 0.53 in predicting appropriate ICD interventions. AUC for predicting all-cause death was 0.69.

Conclusions: The MAGGIC score is able to predict HF-related death in patients with HFrEF and an ICD, but performs poorly in predicting appropriate ICD interventions as a proxy of SCD. Therefore, its accuracy in predicting all-cause death is lower than expected in this particular population. A more accurate and comprehensive risk score should be proposed, by taking into account also ventricular arrhythmias as a
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