

Application of “AL-FINE CRT” risk score before cardiac resynchronisation therapy implantation

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Article Kisiel et al., see p. 1441

The study by Kisiel et al. [1] retrospectively investigated the prognostic value of various parameters in 552 chronic heart failure patients undergoing cardiac resynchronisation therapy (CRT). The goal of the study was to set up a risk score system able to predict long-term mortality following CRT implantation and easily applicable in clinical practice.

The main strength of the created score system, termed “AL-FINE CRT score” (Age [> 75 years], non-LBBB morphology [according to Strauss criteria], Furosemide dose [> 80 mg], Ischaemic aetiology, NYHA class ($> III$) and left ventricular EF [$< 20\%$]), lies in the fact that its components can be easily obtained during the routine preimplantation check-up (medical history, physical examination, electrocardiography, and echocardiography) to assess the long-term mortality risk. The presence of any of the above variables equates to one point, so a maximum of six points could be achieved. Depending on the AL-FINE CRT score, the patients can be divided into three risk categories: low risk (0–1 points, five-year survival of approx. 80%), medium risk (2 points, five-year survival of approx. 60%), and high risk (3–6 points, five-year survival of approx. 40%). A high-risk score, according to the authors, should alert both the physician and the patient to evaluate the long-term benefit of the procedure more realistically and should identify those patients, in whom the implantation procedure might require more attention and maybe more experienced implanters in order to maximise the benefit [1]. The identified high-risk patients might also need “special care” following the implantation: more frequent follow-ups, strict device optimisation, multidisciplinary patient care, aggressive up-titration of medication, participation in rehabilitation programs, etc. Nevertheless, because the results are derived from a retrospective analysis, further prospective studies should validate the usefulness of the AL-FINE CRT model.

Altogether there is a clear need to create applicable risk scores for patients who have undergone CRT implantation,

to predict their long-term outcome. However, the validation and further assessment of the utility of such a score system are always challenging. A risk score system should not only be useful in risk prediction, but ideally it should also allow the clinicians to guide therapy or make therapeutic decisions, for instance regarding the choice of the device (implantable defibrillator [CRT-D] vs. pacemaker [CRT-P]), or the selection of pacemaker patients requiring CRT upgrade. To date, no such risk score systems exist, and the current guidelines do not clearly define the decision algorithm for the above processes [2, 3]. On the other hand, one should be cautious about relying on risk score systems alone, as an automated procedure, because the therapeutic decisions, circumstances of the implantation, and further device programming also have an impact on the long-term clinical outcome of patients; therefore, risk score systems are an additional, but not the sole component of the decision making process.

The authors presented the overall discriminative power of the AL-FINE CRT model (C-statistics of 0.701), which corresponds to the requirements of cardiovascular risk models laid down by the American Heart Association [4]. This discriminative power of the AL-FINE CRT model is very similar to that of other risk models already tested in CRT (e.g. VALID-CRT score reported C-statistics of 0.700 and CRT-SCORE reported C-statistics of 0.748). While the presented risk score is useful in predicting the long-term clinical outcome, it has some weaknesses, such as the lack of procedure-related parameters, e.g. the targeted coronary sinus side branch or the activation delays between the right and left ventricular leads, which might also influence the outcome of patients after CRT implantation [5].

The presented results support the utility of the AL-FINE CRT model [6, 7] and emphasise its importance and application.

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