New Prognostic Risk Calculator for Heart Failure

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Dear Editor,

Across the world, heart failure is one of the leading cause of frequent hospitalizations.[1] The etiology of heart failure may differ in various ethnic groups,[2] and may be due to multiple factors like non-adherence of the patient to medications, end-stage heart failure, or a lack of proper follow-up.[3] We encounter many ambulatory heart failure patients, but many countries do not have adequate heart failure clinics dedicated to serving such patients.[4]

In this scenario, the importance of risk predicting tools that indicate prognosis in heart failure comes into action. In our day-to-day clinical practice, there are many such calculators available, and we know that very few physicians adhere to them.[5] This is mainly due to them being time-consuming to use as a number of variables need to be entered into the app. We need an easy, simple tool which is handy to all such physicians while seeing ambulatory heart failure patients. It is important to decide in which category the subject belongs to and when to give them an outpatient follow-up appointment.[6] Such an easy systematic approach can help reduce frequent hospitalizations in such patients.[7]

We suggest a new prognostic risk predicting calculator for heart failure patients with reduced ejection fraction (HFrEF). The treating physicians will need to enter only four variables to calculate a prognostic score, which is possible during a busy schedule. As heart failure is linked to kidney diseases and anemia, we developed a simple tool by incorporating the variables relevant to all three systems (ejection fraction (EF,%), estimated glomerular filtration rate (e-GFR, mL/min), hemoglobin levels (Hb, g/dL), N-terminal prohormone of brain natriuretic peptide (NT-proBNP, pg/mL)).

However, the suggested heart failure risk model [Table 1] is yet to be validated in large clinical trials in its prediction of heart failure related patient mortality.

The Seattle Heart Failure Model is one among many available risk predicting calculators in heart failure.[8] Here the number of variables to be entered is more than the current proposed calculator.[9] Our R^{HF} score equation was derived while investigating the association of heart failure with various risk factors and its relevance to mortality. The score is anticipated to be applicable in all patients with HFrEF. Presently, the cut-off value is derived by calculating the severity of heart failure with other variables. It is too early to comment on the expected impact of treatment on this score. More details regarding cut-off value and its implications for treatment will be published soon with the results after applying this score in a large cohort of heart failure patients. The heart failure risk score developed from the Meta-Analysis Global Group in Chronic Heart Failure (MAGGIC)

Table 1: Heart failure risk model.

No.	Category	R^{HF} score
1.	High risk	0–5
2.	Moderate risk	5–10
3.	Low risk	10–50
4.	Minimal risk	> 50

R^{HF}: Rajan's heart failure.

$$\text{Rajan's Heart Failure risk } (R^{HF}) \text{ score} = \frac{EF \times \text{e-GFR} \times Hb}{\text{NT-proBNP}}$$

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predicts the risk for heart failure with preserved ejection fraction and HFrEF and is available online.[10] The online version of our heart failure risk score calculator will be available soon at www.hfriskcalc.in.

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