Abstract: P338

HFA-PEFF versus H2FPEF score for diagnosing heart failure with preserved ejection fraction

Authors:
S Sanders-Van Wijk¹, A Barandiarian Aizpurua¹, M Henkens¹, HP Brunner-La Rocca¹, VPM Van Empel¹,¹Maastricht University Medical Center, Department of Cardiology - Maastricht - Netherlands (The),

Topic(s):
Chronic Heart Failure – Diagnostic Methods

Citation:

Funding Acknowledgements:
Health Foundation Limburg, Dutch Heart Foundation

Background: The diagnosis of heart failure with preserved ejection fraction (HFpEF) remains a great challenge, reflected by the recent proposal of 2 diagnostic scores: the H2FPEF-score and the HFA-PEFF-score. Their diagnostic performance has not yet been compared.

Purpose: Investigate the diagnostic performance and reclassification accuracy of 2 new HFpEF-scores.

Methods: Between January 2015 and April 2018, the prospective Maastricht HFpEF cohort included 270 consecutive patients referred to our outpatient clinic with suspected HFpEF. Undergoing a thorough diagnostic work-up, the final diagnosis HFpEF was made in 228 and was rejected in 42 patients. The H2FPEF- and HFA-PEFF-score and their likelihood categories (low, intermediate, high) were calculated as suggested. The diagnostic and discriminative value of the HFA-PEFF-score was compared to the H2FPEF-score, including area under the ROC-curve (AUC), absolute reclassifications, net reclassification index (NRI) and integrated discrimination index (IDI), using the final clinical diagnosis as the gold standard.

Results: Both scores categorized a dominant proportion (i.e. >=50%) of the entire cohort of suspected HFpEF into the high-likelihood category. However, the high-likelihood category was more prevalent using the HFA-PEFF score, leaving a smaller intermediate category (Figure 1, P<0.001). The distribution of the HFA-PEFF score was significantly different between patients with a final HFpEF diagnosis versus non-HFpEF patients (Figure 1, P<0.001), i.e. HFpEF patients scored higher than non-HFpEF patients. This was also true for the H2FPEF-score (Figure 1, P<0.001). The AUC was not significantly higher for the HFA-PEFF-score (0.89, 95% CI 0.82-0.95) versus the H2FPEF-score (0.80, 95% CI 0.72-0.87, P=0.06), although a trend was observed. Reclassification of patients based on the 2 scores is shown in Figure 1. Using the predefined categories, 107/270 (40%) patients were reclassified into a different category (P<0.001). The HFA-PEFF-score reclassified 53 HFpEF patients upward and 36 patients downward, relative to the H2FPEF-score. In non-HFpEF patients, the net reclassification was 0. Together, the net reclassification index of the HFA-PEFF-score was 7.5% (P=0.49). When using likelihood cut-offs (rule-out: ?15%, rule-in: ?85%), the NRI was 37% (P=0.001). The continuous NRI was 78% (P<0.001) and the IDI was 20% (P<0.001).

Conclusions: The diagnostic accuracy (AUC) of both the HFA-PEFF and the H2FPEF score for diagnosing HFpEF was high. However, the HFA-PEFF and the H2FPEF-score classified patients into likelihood-categories very differently; i.e. 40% of patients were reclassified. Using several measures of discrimination, the HFA-PEFF-score performed at least similar or may be better in classifying patients compared to the H2FPEF-score. This finding needs confirmation in additional, preferably less-selected cohorts.
Abstract:

HFA-PEFF versus H2FPEF score for diagnosing heart failure with preserved ejection fraction

Authors:

S Sanders-Van Wijk, A Barandiaran Aizpurua, M Henkens, HP Brunner-La Rocca, VPM Van Empel

1 Maastricht University Medical Center, Department of Cardiology - Maastricht - Netherlands (The),

Background: The diagnosis of heart failure with preserved ejection fraction (HFpEF) remains a great challenge, reflected by the recent proposal of 2 diagnostic scores: the H2FPEF score and the HFA-PEFF score. Their diagnostic performance has not yet been compared.

Purpose: Investigate the diagnostic performance and reclassification accuracy of 2 new HFpEF scores.

Methods: Between January 2015 and April 2018, the prospective Maastricht HFpEF cohort included 270 consecutive patients referred to our outpatient clinic with suspected HFpEF. Undergoing a thorough diagnostic work-up, the final diagnosis HFpEF was made in 228 patients and was rejected in 42 patients. The H2FPEF and HFA-PEFF score and their likelihood categories (low, intermediate, high) were calculated as suggested. The diagnostic and discriminative value of the HFA-PEFF score was compared to the H2FPEF score, including area under the ROC curve (AUC), absolute reclassifications, net reclassification index (NRI) and integrated discrimination index (IDI), using the final clinical diagnosis as the gold standard.

Results: Both scores categorized a dominant proportion (i.e. >=50%) of the entire cohort of suspected HFpEF into the high-likelihood category. However, the high-likelihood category was more prevalent using the HFA-PEFF score, leaving a smaller intermediate category (Figure 1, P<0.001). The distribution of the HFA-PEFF score was significantly different between patients with a final HFpEF diagnosis versus non-HFpEF patients (Figure 1, P<0.001), i.e. HFpEF patients scored higher than non-HFpEF patients. This was also true for the H2FPEF score (Figure 1, P<0.001). The AUC was not significantly higher for the HFA-PEFF score (0.89, 95% CI 0.82–0.95) versus the H2FPEF score (0.80, 95% CI 0.72–0.87, P=0.06), although a trend was observed. Reclassification of patients based on the 2 scores is shown in Figure 1. Using the predefined categories, 107/270 (40%) patients were reclassified into a different category (P<0.001). The HFA-PEFF score reclassified 53 HFpEF patients upward and 36 patients downward, relative to the H2FPEF score. In non-HFpEF patients, the net reclassification was 0. Together, the net reclassification index of the HFA-PEFF score was 7.5% (P=0.49). When using likelihood cut-offs (rule-out: ≤15%, rule-in: ≥85%), the NRI was 37% (P<0.001). The continuous NRI was 78% (P<0.001) and the IDI was 20% (P<0.001).

Conclusions: The diagnostic accuracy (AUC) of both the HFA-PEFF and the H2FPEF score for diagnosing HFpEF was high. However, the HFA-PEFF and the H2FPEF score classified patients into likelihood categories very differently; i.e. 40% of patients were reclassified. Using several measures of discrimination, the HFA-PEFF score performed at least similar or may be better in classifying patients compared to the H2FPEF score. This finding needs confirmation in additional, preferably less-selected cohorts.