Mehrbod Vakhshoori

Loma Linda University
USA

The effect of shock index and its derivative indices on heart failure; A systematic review and meta-analysis

Abstract:

Background: Heart failure (HF) is still associated with significant mortality rates, and utilizing simple prognostic tools is crucial. This study aims to assess the impact of the shock index (SI) and its derivatives, including age SI (ASI), modified SI (MSI), and age MSI (AMSI), on clinical outcomes in patients with HF.

Methods: We systematically investigated PubMed/Medline, Scopus, and Web of Science databases with no restrictions on time or language up to February 2024. Any relevant records evaluating the association of SI, ASI, MSI, and MSI with clinical outcomes in HF subjects were included for downstream data synthesis.

Results: Eight records were selected (age: 69.44±15.05 years). Mean SI in those records reported mortality (either in-hospital or long-term death) was 0.67 (95% confidence interval (CI): 0.63-0.72). Inhospital and follow-up mortality rates in seven (n=12955) and three (n=5253) enrolled records were 6.18% and 10.14% with mean SI of 0.68 (95%CI: 0.63-0.73) and 0.72 (95%CI: 0.62-0.81), respectively. Deceased patients had higher SI values compared to those who survived (standard mean difference: 0.30, 95%CI: 0.06-0.53, P=0.012). Increased SI was associated with higher chances of in-hospital mortality (odds ratio (OR): 1.93, 95%CI: 1.30-2.85, P=0.001). The rate of in-hospital death based on ASI was 6.12% (mean ASI: 47.49, 95%CI: 44.73-50.25) and significant difference was found between death and alive subgroups (0.48, 95%CI: 0.39-0.57, P<0.001). Also, this index was found as an independent inhospital mortality predictor (OR: 2.54, 95%CI: 2.04-3.16, P<0.001). We also found significant difference in terms of MSI (mean: 0.93, 95%CI: 0.88-0.98) between deceased and alive patients (0.34, 95%CI:0.05– 0.63, P=0.021) (Figure 1).

Conclusions: This study indicates SI, ASI, and MSI are simple and reliable tools and can be used at the bedside to assess prognosis and individualize therapy in high-risk patients with HF.

Biography

Mehrbod Vakhshoori completed his MD at Isfahan University of Medical Sciences (IUMS), Isfahan, Iran. He was the postdoctoral research fellow at heart failure research center, affiliated to IUMS, for more than 5 years. He is currently a postdoctoral research fellow at Loma Linda University, California, USA. His research interest mainly focuses on cardiovascular diseases. Mehrbod has currently published more than 50 articles and has been invited by several medical journals to review more than 40 manuscripts. He is also the editorial board member of plos one journal, one of the well-known journals in medicine field