Abstract: 
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A TNM-like staging system for risk stratification in heart failure patients: comparison with others nosologies

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Background: To better classify patients with heart failure (HF), we proposed a new staging system named HLM, analogous to TNM classification used in oncology, which refers to heart damage (H), lung involvement (L), and malfunction (M) of peripheral organs (JACC 2014;20;63(19):1959-60). The aim of this study was a comparison between HLM and NYHA, ACC/AHA, ESC and MAGGIC score to assess the most accurate prognosis of HF patients in terms of rehospitalization for major adverse cardiac and cerebrovascular events (MACCE) and cardiac death.

Methods: We performed an observational registry of 1380 consecutive HF patients. All parameters for heart, lungs and peripheral organs function were examined. Each patient was classified according to HLM, NYHA, ACC/AHA, ESC and MAGGIC score at the entrance and at the discharge. Rehospitalization for MACCE and cardiac death were checked at 12 months follow up.

Results: Among 1380 patients: 68.5% males, 31.3% females, mean age 70.18 ± 7.48 years. Overall survival curves regarding rehospitalization for MACCE and cardiac death at 12 months, show that HLM classification is as valid as the others (p<0.001). In particular, the area under the ROC curve (AUC) is greater for HLM than NYHA, ACC/AHA, ESC and MAGGIC score in terms of MACCE (HLM=0.691; NYHA=0.625; ACC/AHA=0.593; ESC= 0.547; MAGGIC=0.624) and cardiac death (HLM=0.792; NYHA=0.711; ACC/AHA=0.637; ESC=0.562; MAGGIC=0.729). All the variables of each nosology are significantly correlated with rehospitalization for MACCE and cardiac death (p<0.001), except NYHA II, HFmrEF and all the ACC/AHA stages (p>0.05).

Conclusions: According to these results, HLM classification has greater prognostic power compared to the other nosologies in terms of MACCE and cardiac death in HF patients, thanks to the evaluation of heart, lung and peripheral organs involvement. A wider and systemic approach should be used in HF patients, in order to improve clinical management and costs.