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Cognitive impairment in patients with heart failure: a descriptive international study

Authors:
E Vellone1, O Chiala2, L Klompstra3, JJ Boyne4, A Stromberg3, T Jaarsma3, 1University of Rome Tor Vergata, Biomedicine and Prevention - Rome - Italy, 2School of Military Health - Rome - Italy, 3Linkoping University - Linkoping - Sweden, 4Maastricht University Medical Centre (MUMC) - Maastricht - Netherlands (The),

Topic(s):
Chronic Heart Failure – Treatment

Citation:

Funding Acknowledgements:
Swedish National Science Council; Swedish Heart and Lung Association; Swedish Heart-Lung Foundation; Vårdal Foundation; Medical Research Council

Introduction
Cognitive impairment (CI) in patients with heart failure (HF) is common and associated with poorer outcomes such as decreased quality of life, lower self-care and higher mortality rates. Despite several studies have been conducted on CI in HF patients, to date no studies have described CI in different settings in a variety of health care systems.

Objective
The aim of this study was two-fold: 1) to describe CI in an international sample from six countries and, 2) to identify determinants of CI.

Methods
This is a secondary analysis performed on the baseline data of the HF-Wii study, a RCT study aimed at exploring the effect of exergame access to improving exercise capacity in HF patients. HF patients were enrolled in Sweden, Italy, Israel, The Netherlands, Germany and United States. CI was not an exclusion criterion of the study. The Montreal Cognitive Assessment (MoCA) test (score from 0 to 30) was used to measure CI, with lower score meaning a more severe CI. Exercise capacity was measured with the 6 minute walk test. Descriptive statistics and regression analysis were used to analyse the data.

Results
The sample included 605 HF patients with 333 from Sweden, 96 from Italy, 60 from Israel, 84 from The Netherlands, 24 from Germany and 8 from the United States. Participants had a mean age of 67 years (SD 12), were mostly males (71%) and in New York Heart Association class II and III (86%). The mean score at the MoCa test in the total sample was 24.35 (SD 3.84). Considering the MoCA scores, 33% had no or a light CI, 62% of participants had a mild CI; 5% had a moderate CI, and 0.3% had a severe CI. In the stepwise regression, worse exercise capacity (standardized beta=-0.28), older age (standardized beta=0.20), lower education (standardized beta=-0.16) and more comorbidities (standardized beta=0.10) were independently related to lower CI (R2=0.26).

Conclusion and implication
In this large international sample of HF patients we found that more than two third of the patients had cognitive impairment. Since exercise capacity resulted as the most important and modifiable determinant of CI, interventions aimed at improving exercise capacity might have the potential to improve also CI in HF patients. Future exercise studies therefore should also include cognitive testing among outcomes.