

Will an interactive smartphone application improve self-care behavior and quality of life in patients with heart failure?

Authors:

Y. Lopatin¹, A. Grebennikova¹, A. Stoliarov², T. Jaarsma³, ¹Volgograd State Medical University, Volgograd Regional Cardiology Centre - Volgograd - Russian Federation, ²Volgograd State University - Volgograd - Russian Federation, ³Linköping University - Linköping - Sweden,

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Background: Despite the evidence of the beneficial effects of self-management interventions on mortality, hospitalization rate and quality of life (QoL) in patients with heart failure (HF), the search for the most effective programs continues. The aim of our study was to evaluate the effectiveness of an interactive smartphone application (app) based on the Russian version of the 9-item European Heart Failure Self-care Behaviour Scale (EHFScBS) for improving self-care management and QoL in patients with HF.

Methods: Consecutive 142 patients (mean age 59±12.2 years, 63% male) with decompensated HF (61% of ischemic etiology), NYHA II-IV (2.8±0.6) and a mean left ventricular ejection fraction of 32±7.0% were included in this study. All patients were provided with general information about HF such as symptoms, principles of self-care, diet, medical therapy and physical activity according to the Russian HF guidelines. Before discharge from the hospital, the original smartphone support app, based on EHFScBS-9, was downloaded on the mobile phones of 47 patients with HF. Other 95 patients with HF who had refused to use the smartphone app became the control group. There were no differences in demographic and clinical characteristics between both groups of patients with HF. The duration of follow-up was 6 months.

Results: On admission, the mean EHFScBS-9 score was similar in the smartphone app group and the control group – 47.6±2.1 and 47.4±1.9, respectively. However, after 6 months of follow-up, a significant increase in the mean EHFScBS-9 score was noted in the smartphone app group (74.8%, p<0.05) but not in the control group (23.2%, n.s.). There was also a significant improvement in QoL in the smartphone app group by 57.6% vs. 39% in the control group (p<0.05), as measured by the Minnesota Living with Heart Failure Questionnaire. The smartphone app group demonstrated the highest adherence to daily weight control, contact with a physician or a nurse in case of increased dyspnea and control of medication intake. The patients noted that the app was easy to use; and only 10.6% of patients needed the help of relatives. Moreover, the rate of death or repeat hospitalizations due to worsening HF in the control group was 24.2%, whereas among the patients using the interactive smartphone app there were no deaths or readmissions.

Conclusion: The interactive smartphone application based on the 9-item European Heart Failure Self-care Behaviour Scale may be considered as a promising tool for the management of patients with heart failure. Further large long-term studies are needed to assess the effectiveness of this intervention in decreasing mortality and hospitalization rate in patients with heart failure.