The role of health education in heart failure patients

Rola edukacji zdrowotnej u chorych z niewydolnością serca

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Abstract

According to European Society of Cardiology guidelines, the goal of heart failure (HF) management is to provide an effective system of care through the whole patient’s journey including hospital and ambulatory pathway. Strategies based on patients’ education, psychosocial support and monitoring should be considered as a fundamental part of multidisciplinary disease management programs and may lead to a reduction in mortality and morbidity and improvement in the quality of life. In this article, we focus on patient’s education strategies by describing different models: “one-to-one” strategies, multidisciplinary care management programs, activation of the family members, pharmaceutical care, and end-stage HF advance care planning. Furthermore, we explain the problem of health literacy among HF patients and describe actionable advice on how medical professionals can effectively improve patients’ comprehension and knowledge on disease management and the ability for self-care. Lastly, we review the latest evidence on outcomes obtained by HF education.

Key words: heart failure, self-care, adherence, lifestyle, pharmacotherapy, health education, patient empowerment

Introduction

Heart failure (HF) is one of the main and unresolved problems of public health, contributing significantly to mortality and morbidity in Poland and in the world. According to the latest epidemiological data, the prevalence of HF in developed countries is estimated at 1–2% of the adult population and over 10% among people over 70 years of age. Forecasts for the future indicate that HF will become the leading cause of death and the costs associated with the disease will increase significantly. It affects the quality of life, contributes to frequent recurrent hospitalizations, and increases the risk of death. Undoubtedly, pharmacotherapy remains the basic treatment in HF, however, patients can benefit from participating in various types of educational programs focused on comprehensive care and monitoring. Such strategies can be created and implemented by multidisciplinary teams, which may include: cardiologists, HF nurses, general practitioners, pharmacists, psychologists, social workers, physiotherapists and others.

The 2016 ESC guidelines for the treatment of patients with HF list a number of non-pharmacological methods helpful in the care of this patients group, emphasizing the special importance of multispecialty teams, monitoring and physical activity. Systematic reviews indicate the potential impact of different patient education strategies on improved prognosis and quality of life, reduced HF, but the data is ambiguous [1].

Education of people with HF may contribute to the consolidation of pro-health behaviours as well as those
related to the self-control of symptoms, which consequently has a positive effect on lifestyle modifications. Education should be tailored to the needs of the patient and should involve the family and relatives. Educational activities should start in the hospital and be continued for as long as needed with the use of various types of modern technology enabling contact with the patient or remote monitoring, ensuring comfort and safety in a sensitive post-hospital period.

The purpose of this article is to present a literature review on educational strategies and methods developing pro-healthy behaviours in people with HF.

**Place of education and recommendations related to self-care in the guidelines of the ESC 2016**

According to the European Society of Cardiology Guidelines for the management of HF in 2016, multi-specialized care programs should be created for comprehensive, multi-level care of patients with HF to reduce the risk of hospitalization and reduce mortality with class I recommendations and level of evidence A. Such interventions should include structured, remote observation in the post-hospitalisation period, education, optimization of pharmacotherapy, psychosocial support and easier access to the health care system. The class of recommendations I with the level of credibility A is also proposed for regular aerobic exercise, to improve physical performance, reduce symptoms and the risk of hospitalization. For this reason, encouraging regular exercise and explanation of its benefits should be a key element in educating people with HF. There are many other self-care behaviours that are recommended in guidelines, including regular monitoring of overhydration symptoms, daily body weight measurements, adjustment of fluid supply, adjustment of a diuretic dosage depending on the severity of symptoms, adherence to a healthy diet, smoking cessation, alcohol consumption control or cessation, excessive daily salt intake avoidance (> 6 g/day), depression symptoms recognition or using professional advice, however, due to the lack of unambiguous evidence, that such actions bring effects in the form of improved prognosis, morbidity and quality of life, neither a class of recommendations nor an adequate level of data reliability has been proposed for them. Detailed guidelines for this type of procedure along with practical recommendations have been summarized and included in the guidelines of the Association of Heart Failures (HFA) of the ESC [2–4] (Figure 1).

Patients and their families should also have full knowledge of how to manage end-of-life HF. In this case, detailed education is recommended in order to identify the patient’s preferences and wishes. Education carried out early enough in the period preceding end-stage HF may help with the choice of the right strategy of discomfort reduction that is accepted by the patient and thus leads to the quality of life improvement.

While conducting educational activities among patients with HF, educators should be aware of potential limitations in terms of cognitive abilities and the ability to understand the educational content by patients. This may be the result of cognitive functions impairment resulting from the ageing process, previous episodes of stroke or depression, as well as chronic hypoxia of the central nervous system. For this reason, it is recommended that the education should be carried out by trained staff who are part of a multidisciplinary team, with the involvement of family and relatives, which can improve the effectiveness of educational activities. The method of education and its scope should be adapted to the patient’s cognitive abilities and the level of involvement of relatives and family. You can also consider using aids such as medication containers, automatic pressure or weight measuring devices, or self-monitoring diaries that facilitate the development of self-control skills.

Educational activities should also be an element of care in the peri-discharge period due to HF decompensation. According to the ESC, hospitals in which the monitoring procedure was implemented in the early post-discharge period, as well as those that used discharges reports with a cardiac outpatient appointment, showed a lower percentage of 30-day early rehospitalization for HF compared to those who did not use such procedures [2].

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**Figure 1.** Self-care skills, which patient should acquire as a result of health education; HF — heart failure.
Health literacy is defined by AUCD (Association of University Centers on Disabilities) as the individual’s ability to obtain, process and understand basic information related to health and the health care system necessary to make the right decisions related to health. Factors related to living conditions and human development that affect the level of health literacy are: education, individual skills, gender, age, culture and language, living conditions, and early childhood development. Low level of literacy impedes cooperation with health care workers, causes difficulties in communication and poor understanding of recommendations, which translates into higher mortality and the risk of hospitalization.

Matteo Fabbri et al. [5] conducted a prospective outpatient study on the health literacy level among 2487 patients with HF using a validated set of questions. The incidence of a low level of literacy (defined as 8 out of 15 possible points) in the study group was 10.5%. The results indicate that the risk of death among patients with a low level of literacy is twice as high as in patients with appropriate level, even after adjustment for other variables such as age, sex, education level, marital status or co-morbidities. Similarly, the risk of hospitalization in this group increases by 30% [5].

Low level of literacy occurs frequently among people suffering from chronic diseases, so patient’s ability assessment prior to educational activities can help adjust the message to individual needs and increase the chance for a correct understanding of the provided information. The techniques helpful in educating patients with a low level of literacy include slow speaking, simple words and sentences usage, medical terminology avoidance, short sentences usage, interactive methods usage: illustrations, films, etc. [6].

The “teach-back” technique is one of the tools used by professional medical staff to assess understanding of the content provided during education and to improve communication with the patient. It consists of checking the level of understanding of the transmitted content by asking the learner to repeat the information he was given with his words. This allows to check understanding constantly, correct inaccuracies and explain elements that have not been properly understood by the patient. The effectiveness of this method has been studied in patients with HF, its usage is observed to have a trend towards the frequency of hospitalization reduction [7].

### Strategies based on education in patients with heart failure

#### Direct education between the patient and the health care worker

Direct education is the core of educational activities in health care. Medical staff involved in the patient’s education should be properly trained and prepared. Educational activities can be conducted by a nurse, doctor, pharmacist or other health care worker, who is prepared for the role of an educator, during a patient’s stay in the hospital, in outpatient settings or using modern technologies in the post-discharge period.

According to literature data, direct education conducted by a nurse is the most common education strategy of a patient with HF and may lead to a reduction in the frequency of repeated hospitalizations. Breathett et al. [8] proved that the frequency of repeated hospitalizations in 30 days post-discharge was significantly lower in the group of HF patients educated by the nurse (20.4%, 23/113, p = 0.001) compared to the group without education (50.0%) (14/28) [9]. Rice et al. [9] have proved that education not only reduces the frequency of re-hospitalization but also improves the quality of life and mental state in patients with HF.

#### Relatives education

The consequences of HF affect not only the patient but also their families and relatives. A common challenge for the family members is understanding the nature of the disease and related problems, as well as the basic principles of care, monitoring symptoms, and the need to accept a gradual deterioration of the patient’s quality of life. The relatives have to face the difficult task of motivating and supporting the patient, implementing the required lifestyle changes, preparing meals and fulfilling the recommendations related to pharmacotherapy. Many studies emphasize the importance of education for relatives and indicate that this is one of the key elements of care, but the available data on this subject are scarce [10].

Stamp et al. [11] studied motivation and self-confidence among HF patients depending on the level of family support. The group of patients supported by families showed a significant increase in motivation and self-confidence (change in the baseline from 72% to 90.6% after 4 months) compared to the standard group in which no changes were observed. Patients supported by the family were more confident in complying with the recommendations related to pharmacotherapy and diet [11].
According to Dunbar et al. [12], education and family support contribute to better control of dietary recommendations. Participants whose families gave less support showed a tendency to higher sodium values in comparison to the baseline. Family members often prepare meals for patients, therefore should be educated about the principles of diet, as well as fluid and sodium intake in order to effectively support patients in dietary compliance [12].

The chronic nature of HF requires the introduction of permanent changes in lifestyle that affect not only the patient but also members of their families. The involvement of the loved ones in the treatment process may strengthen the patient’s motivation and self-confidence, support self-care activities, improve compliance. Therefore, education of family members should be an integral part of care systems for this group of patients.

**The pharmacist’s role in the education of patients with HF**

The goal of pharmaceutical care is to optimize the use of drugs, which leads to improved treatment results. Pharmacists have the opportunity to improve treatment outcomes in chronic patients by identifying the interaction between the medications used by the patient, recognizing adverse reactions associated with medication, education in terms of the correct use of prescribed drugs, which leads to improved treatment results. Pharmacists, dieticians and other health care professionals may include nurses, cardiologists, physiotherapists, dieticians and other health care professionals. The tasks of such a team include coordination of care, education, monitoring and patient support in compliance with the available resources. The multidisciplinary team that takes care of HF patients may include nurses, cardiologists, physiotherapists, dieticians, and other health care professionals. The tasks of such a team include coordination of care, education, monitoring and patient support in compliance with recommendations including pharmacotherapy. The use of telemedical solutions for remote monitoring of parameters such as body weight, blood pressure or heart rate allows better control of symptoms and clinical condition of the patient [16] (Figure 2).

Bell et al. [14] conducted a randomized controlled trial including 862 patients with decompensated HF or acute coronary syndrome to assess the impact of pharmacists’ involvement on the incidence of cardiovascular events defined as time to first unplanned hospitalization or a visit to emergency room post-discharge. Although the study did not show any significant differences in the primary endpoint, stratification analysis revealed a significant reduction in the use of unplanned health resources in the group of patients with the low level of health literacy [hazard ratio (HR) = 0.41, 95% confidence interval (CI): 0.17–1.00]] [14]. The above-mentioned study shows that health education conducted by a pharmacist may contribute to improving the results of treatment of patients with a low level of health literacy.

**Education lead by multidisciplinary teams**

Multi-specialized care programs, among many programs including education, should be a key element of comprehensive care for patients with HF and they are just as important as proper pharmacological treatment [15].

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In the study of Leibovici et al. [16] study, patients under the care of multi-specialized teams in the post-discharge period were characterized by a better quality of life and lower rates of depression than the control group. There was also a trend towards a reduction in the hospitalizations number [16].

Breathett et al. [8] described a multidisciplinary education conducted by a nurse based on educational content
Education at the end of life

Advance care planning (ACP) is a valuable method of education used in people at the terminal stage, which allows the patient to become familiar with the prognosis and available procedures and then decide which method is preferred and acceptable by the patient. It would be ideal to start education at an early stage and continue it as the disease progresses. If possible, with the consent of the patient, the family should also be involved in the process of planning the end stage of the patient’s life [2, 18]. Despite the obvious benefits for the patient, this method is still rarely used in Poland.

In a study conducted by El Jawahri et al. [19] among patients with advanced HF, the effectiveness of standardized oral information on the purpose of palliative care was compared to information provided with the support of educational video. In contrast to the control group (30% vs. 41%), the group educated with the support of a film (intervention group) more often chose care focused on the quality of life rather than on the extension of life (51% vs. 22%, p < 0.001). In addition, patients within the intervention group more often resigned from invasive palliative care like cardiopulmonary resuscitation or intubation, and also achieved higher knowledge rates compared to the control group [19].

The quoted results indicate that the use of video materials in the education of patients at the end of life may improve the understanding of the presented content and influence the treatment choice. Displaying a film can also facilitate a conversation between a doctor and patients about prognosis and proceedings in the terminal phase.

Conclusions

Care programs for patients with HF with elements of education are recommended by the ESC guidelines as a supplement to traditional methods of treatment. They aim to increase the patient’s involvement in the treatment process by improving understanding of the disease, developing self-care skills and self-control, as well as consolidating behavioural changes related to physical activity and nutrition. Educational programs can help patients cope with the challenges of HF in a more proactive way. Closer and more frequent contact of the patient with health care workers improves communication and builds the self-confidence of the patient, which leads to a reduction of anxiety and stress related to the disease.

Despite the existence of many programs for the care of patients with HF, their adaptation through health care systems is insufficient and requires proactive actions by the payer due to difficulties in standardizing the education process of patients. There is a need for a multidisciplinary, coordinated approach to care for patients with HF, which would enable systematic post-hospital monitoring, health education, optimization of therapy and psychological support in this group of patients leading to more focused attention towards the needs of the individual patient and his family.
References


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