The level of anxiety, depression and quality of life among patients with heart failure in Greece

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ABSTRACT

Purpose: The assessment of the level of anxiety, depression and quality of life among patients with heart failure.
Methods: It was an observational study. The populations were 231 patients with heart failure who were hospitalized in cardiology departments of 2 general hospitals in Athens, from September 1, 2010 through January 31, 2012. We used the "Minnesota Living with Heart Failure Questionnaire - MLHFQ" to evaluate patients' quality of life and the " State-Trait Anxiety Inventory - STAI" and the "Maastricht Questionnaire - MQ" to evaluate the level of stress and depression, respectively.
Results: The mean age of patients was 66.1 ± 10.1 years. The quality of life was poor, since the average score in MLHFQ was 65.4 ± 20.6. Also, patients revealed high levels of both trait and state anxiety (mean score in STAI was 54.5 ± 9.4 and 52.8 ± 8.5 respectively) and depression (mean score in MQ was 34.3 ± 8.4). Factors associated with poor quality of life and high levels of anxiety and depression were older age, low level of education, unemployment, poor economic situation, multiple hospitalizations (> 4 times) and heart failure stages III and IV in NYHA ($p < 0.001$ in all cases).
Conclusion: Patients with heart failure present severe symptoms of anxiety and depression and poor quality of life. Assessing those patients for these symptoms and providing holistic health care by a multidisciplinary team, will lead to the prevention and early treatment not only of physical but also of the psychosocial manifestations of the disease.

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1. Introduction

Heart failure (HF) is a common disease and a serious public health problem, since 26 million adults worldwide are living with HF (European Society of Cardiology, 2014). The annual incidence of HF increases steadily, however the increase depends from the aging of population in each country (European Society of Cardiology, 2014). For instance, HF is a major and growing health problem in USA since 5.7 million people have been diagnosed with HF and 1 of 9 deaths attributed to HF (Mozzafarian, 2016). In addition, 15 million people in Europe suffer from heart failure (Keel, Wait, Harding, & McLister, 2015). Regarding Greece, it is estimated that there are approximately 200.000 patients with HF and about 30.000 new cases each year (Trikas, 2005).

According to literature review, the majority of patients with HF experience symptoms of anxiety and depression, while it is also observed a considerable reduction in patients' quality of life (QOL) (Kessing, Denollet, Widdershoven, & Kupper, 2016). The study of Lefteriotis et al. mentioned that the prevalence of depression among patients with HF varies between 9% to 60% depending on the method which researchers used in order to assess the level of depression (Lefteriotis, 2013). Sohani et al. found that the incidence of depression among heart failure patients estimated at 19.3% according to the method of interview and 33.6% when questionnaires are used (Sohani, 2012). Regarding anxiety, Alhurani et al. mentioned that patients with HF have higher level of anxiety by 60% in comparison with healthy elderly, whereas 40% of heart failure patients experience severe symptoms of depression (Alhurani, Dekker, FAAN, & Moser, 2015). Both depression and anxiety lead to a deterioration in patients' QOL with HF (Polikandrioti et al., 2015) (Kessing et al., 2016).

In addition, many studies examined the factors which affect the development of depression and anxiety in patients with HF and the impairment of QOL. For instance, Polikandrioti et al. in a study of 190 people with HF observed that married patients have lower level of depression compared to single, divorced and widowed patients. In addition they found that patients with longer disease duration and more

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anxious and depressed (Polikandrioti et al., 2015). In another study supported that QOL among patients with HF is affected by the gender, educational level and employment status, whereas it is not affected by marital status and classification of HF by New York Heart Association (Sawafta & Chen, 2013).

The aim of the present study was to estimate the level of depression, anxiety and QOL in patients with HF in Greece. In addition, we tend to examine the associated factors with the presence of anxiety, depression and poor QOL like sociodemographic characteristics and factors related to heart failure. The study will contribute to prevent all these factors that lead to depression, anxiety in order to improve QOL in patients with HF.

2. Methods

2.1. Design

The sample consisted 231 patients with HF stage II to IV according to New York Heart Association (NYHA) classification.

The inclusion criteria for participants were the following: (1) at least 40 years old; (2) ejection fraction (EF) ≤35%; (3) presence of typical symptoms of HF (breathlessness, ankle swelling, and fatigue); (4) presence of typical signs of HF (elevated jugular venous pressure, pulmonary crackles, and displaced apex beat); (5) knowledge of the Greek language; (6) ability of verbal communication; (7) written informed consent and (8) patients should not conduct any diagnostic procedure two hours before their enrolment in the study. (Grady et al., 2001) (Parajon et al., 2004) (Hunt et al., 2001) (Lloyd-Jones et al., 2002) (Bleumink et al., 2001) (Morales, Cunningham, Brown, Liu, & Hays, 1999) The exclusion criteria of the study were (Χριστοδούλου, 2004): (1) existence of depression before the diagnosis of HF; (2) existence of schizophrenia before the diagnosis of HF; (3) existence of chronic respiratory failure; (4) existence of musculoskeletal disease, which affects patients' ability to conduct any physical activity; (5) existence of chronic renal failure at end stage; (6) diagnosis of cancer during the last 5 years.

3. Data collection

3.1. Procedure

The data collection was taken place from September 2010 to January 2012 in a General Hospital of Athens in Greece. The same researcher each time distributed the tools to participants and thereafter they fulfilled the tools during a semi-structured interview. The researcher team selected this specific method in order participants to have had the ability to express their queries and the research could to simplify them.

3.2. Socio-demographic form

This consisted of items regarding socio-demographic characteristics and information regarding the medical history of patients and based on the medical records.

3.3. STAI

The State-Trait Anxiety Inventory (STAI) questionnaire was used to assess the level of anxiety in patients with HF. The questionnaire was developed by Spielberger in 1970 (Spielberger, Gorsuch, & Lushene, 1970). The tool consists items both for situational anxiety and constructive anxiety. The sub-scale for the situational anxiety (STAI form Y-1) includes 20 items which examine how patients feel at real time. On the other hand, the sub-scale for constructive anxiety (STAI form Y-2) consists 20 items which measure how patients feel in general. The two sub-scales are printed in the same page; however on reverse sides. Each

answer encoded in a Likert-scale with four points from not at all (1) to very (4). The lower score for each subscale is 20 and the higher 80. Higher score indicates higher level of anxiety. The scale has been translated and validated in Greece (Fountoulakis, Papadopoulou, Papadopoulou, Bizeli, & Nimatoudis, 2006). The Cronbach's a value was 0.93 for the State and 0.92 for the Trait subscale (Fountoulakis et al., 2006).

3.4. MQ

The Maastricht Questionnaire (MQ) was administered in patients in order to assess the level of depression. The questionnaire was developed by Appels in 1987 (Appels, Hoppener, & Mulder, 1987). It consists a 20-point Likert scale and answers encoded as yes, no and not known (yes = 2; not know = 1; no = 0). The total score ranges from 0 (minimum) to 40 (maximum). Scores greater or equal than 15 indicates the presence of depression. The MQ has been translated and validated in Greek population, Cronbach's a values was 0.74 (Αναγνωστοπούλου & Κιοσέογλου, 1999).

3.5. MLwHFQ

Patient's self-assessment of health related quality of life was measured by the Minnesota Living with Heart Failure Questionnaire (MLwHFQ). The MLwHFQ is a disease-specific measure and design by Rector for use in HF (Rector, 1992). The MLwHFQ contains 21 items with 6-point Likert response scale ranging from 0 to 5. The MLwHFQ includes subscales for physical (8 items) and emotional function (5 items) and 8 additional items that are part of the total MLwHFQ. The possible range of the total score is from 0 to 105; a higher score indicates poorer HRQL. This instrument has documented validity, reliability and sensitivity in Greece (Brokalaki et al., 2015). Brokalaki et al. found 0.97 Cronbach's alpha value among patients with heart failure in Greece (Brokalaki et al., 2015).

3.6. Ethical approval

In order to use the STAI, MQ and MLwHFQ in this study, we asked the permission of the developers before the start. The study was approved by the Ethics Committee of the hospitals (34/2010). The participants in the study were informed about the purpose of the study before written consent was obtained. The researchers also guaranteed that the documents would be kept confidential.

3.7. Analysis

The mean values (mean), standard deviations (Standard Deviation = SD), medians (median) and interquartile ranges used to describe the quantitative variables. Absolute (N) and relative (%) frequencies used for the description of qualitative variables. For the comparison of quantitative variables between two groups used the non-parametric test Mann-Whitney. To compare quantitative variables between more than two groups used the non-parametric test Kruskal-Wallis. For the control of Type I error due to multiple comparisons, the Bonferroni correction was used according to which the significance level is 0.05/k (k = number of comparisons). To test the relationship between two quantitative variables used the correlation coefficient of Spearman (r). The correlation is considered low when the correlation coefficient (r) ranges from 0.1 to 0.3, moderate when the correlation coefficient ranges from 0.31 to 0.5 and high when the ratio exceeds 0.5. Linear regression analysis with the procedure of sequential inclusion/removal (stepwise) was used to find independent factors associated with different scales that generated dependency rates (b) and their standard errors (standard errors = SE). The linear regression analysis was done using a logarithmic transformation. Significance levels are flanked and statistical