DETERMINANTS OF THE QUALITY OF LIFE IN PATIENTS WITH ISCHEMIC HEART DISEASE

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ABSTRACT

THE PURPOSE of the development is to study determinants of the quality of life, related to the health of patients with chronic ischemic heart disease. METHODS: A structured questionnaire has been used, containing questions for determination of the quality of life related to health. RESULTS: The assessment of the quality of life in patients with chronic ischemic heart disease is important for the management of the disease. A dependency has been established between the quality of life and age in the following spheres: mobility (χ²=9.11, p=0.01); self-service (χ²=10.85, p=0.004); ordinary activities (χ²=17.41, p=0.01001) and pain/discomfort (χ²=11.78, p=0.003). Anxiety and personal predisposition also have a negative effect on the assessment of health and coping with the disease. CONCLUSIONS: Age is a factor for lower health assessment, problems in the physical functioning and social activity. Dependencies have been established between anxiety and the studied spheres of health related quality of life. The assessment of the quality of life in patients with chronic ischemic heart disease is important for the management of the disease.

Key words: coronary heart disease, risk factors, management of the disease, disease prevention

INTRODUCTION

Ischemic heart disease is a major problem in healthcare in all countries of the world, despite the intensive achievements in the field of medicine. The causes are multi-factor, connected with the increasing age of the general population. Bulgaria is among the countries with the highest death rate in Europe in terms of cardio-vascular diseases. In the developed countries the decreasing death rate is mainly due to the improvement of the care for the patients and better quality of life. At the same time the ischemic heart disease is one of the most serious reasons for patients’ disabilities and loss of years of active life. Thanks to the activity of WHO and the international scientific companies vast experience has been gained in the prophylactics and the approaches to coping with the cardio-vascular diseases. Unfortunately he good policies and practices are not widely applied in our country. Those alarming tendencies impose the implementation of fast solutions and measures for increase in the efficiency of the prophylactics and the improvement of the life of people with coronary arterial disease (1-3).

The health-related quality of life (HRQL) gives a complex assessment of the health condition of the people and their perspectives for a full-value life in the availability of the disease. The health studies from the patient’s point of view are important because they not only discloses the clinical effect of the medicinal procedures but also provide information about the realization of the global objective of WHO – adding years of quality life. The health-related quality of life is a multi-dimensional concept, integrating aspects related to the physical, mental, emotional and social functioning. The main focus is on the consequences of the disease influencing the life standard and health well-being of the personality (4, 5).

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The objective of the research is to study some aspects of the health-related quality of life connected with the health of patients with chronic ischemic heart disease.

MATERIAL AND METHODS

Object of the study are 146 patients with chronic ischemic heart disease (CIHD) and a control group of 162 individuals. Persons above the age of 18 of different sex, Bulgarian ethnic origin and different marital and social status have been involved in the study.

The study was carried out using a structured questionnaire, containing adapted self-assessment tools:

A standardized questionnaire for the study of HRQL - EuroQol (EQ-5D-3L), adapted Bulgarian version. EQ-5D-3L is structured in 2 parts. The first part consists of 5 areas:

- **mobility** (walking, staircase climbing, physical exertion, etc.)
- **self-service** (daily toilet, feeding, personal hygiene, etc.)
- **regular activities** (work, study, household activities, family and leisure activities)
- **pain/discomfort**
- **depression**.

The studied individuals define their condition through a choice of their corresponding level of ability to cope in each area. The levels have been graded in the following manner: “no difficulties”, “some difficulties” and “serious difficulties”. The assessment is made using points from 1 to 3. The respondent must assess the health-related quality of life as of the time of filling in the test.

The second part of the questionnaire is a visual analogue grade (VAG) “thermometer”. The respondents must register a quantitative grade of their personal health on a visual analogous grade from 0 to 100 points. The “worst health” is marked by 0 and the “excellent health” - by 100 points (6).

A State-Trait Anxiety Inventory (STAI), adapted for the Bulgarian population by D. Shtetinski and P. Paspalanov. The questionnaire is applicable under clinical conditions for diagnosis of anxiety and its discerning from depressive syndromes. Y-form is the most popular version, containing 40 questions for assessment of anxiety as a condition and personal feature. According to the purpose of the study, both parts can be used either independently or simultaneously. The responses are assessed under a 4-degree scale: almost never – 1; sometimes – 2; often – 3; almost always – 4. The values of personal anxiety within the norm are as follows: 43.7 for men and 48.8 for women; SD=9.6. Persons with an average result of the answers to the questionnaire above those values show anxiety (7).

The statistical data processing was carried out using descriptive statistical methods, parametric, non-parametric and correlative analysis. The statistical software SPSS v.19 was used. The graphic presentation of the results was performed using MS Excel for Windows.

RESULTS AND DISCUSSION

The distribution by sex and age of patients with chronic ischemic heart disease is as follows: men 73, average age 60.17±2.48; women 73, average age 62.27±2.78. The relative share is the highest in patients living in cities: men 41 (56.16%) and women 41 (56.16%); married: men 48 (65.75%) and women 38 (52.05%). With respect to education, the highest relative degree belongs to the individuals with secondary education: men 44 (60.30%) and women 38 (52.05%). The retired respondents prevail: men 39 (53.40%) and women 44 (60.27%).

All patients participating in the study have been diagnosed with ischemic heart disease – chronic form: stable stenocardia 1, 2, 3 Functional class (individuals with 4 FC are not studied). The cases of CIHD accompanied by a hypertension heart disease prevail. The patients with stable stenocardia FC 1 are 14 (9.6%); stable stenocardia FC 2 – 20 (13.7%); stable stenocardia FC 3 – 32 (21.9%). Totally 66 of them have a stable stenocardia (55.02%); with irregularities in the cardiac rhythm and conductivity 35 (24%); painless form of myocardial ischemia 46 (31.50%). 89 patients have arterial hypertension and duration of the disease for over 5 years. From them 49 are women (67.1%) and 40 men (54.8%). There was an association between stable stenocardia FC 3 and age ($\chi^2=10.60$, df=2, $P<0.05$), and employment ($\chi^2=10.50$, df=2, $P<0.05$). Age is a factor of availability of hypertension in patients ($\chi^2=7.60$, df=2, $P<0.05$). There is no connection between the remaining forms of CIHD with sex, education, place of living, marital status and employment ($P>0.05$).

The control group consists of 72 men and 90 women without ischemic heart disease. The highest relative share belongs to the men - 49 (68.06%) and women 57 (63.33%) living in cities. The married women prevail 62 (68.89%)
Problems in the “mobility” dimension have 43 (43.9%) male and 55 (56.1%) female patients. There is a dependency between the mobility and the sex of the interviewed ($\chi^2=4.46$, df=2, p=0.03). Difficulties in “mobility” have 66 (75.9%) patients aged above 60 and 31 (56.4%) individuals aged 40-59. Difficulties in the studied area have 24 (82.2%) respondents living in villages and 53 (64.4%) patients from the cities. The same problems are typical of individuals without a partner 28 (75.7%); married 56 (56.1%); with secondary education 57 (69.5%) and retired 67 (80.7%). There is a dependency between the sphere “mobility” and age ($\chi^2=9.11$, df=2, p=0.01); education ($\chi^2=7.47$, df=2, p=0.02) and employment ($\chi^2=14.29$, df=2, p=0.001). Difficulties in the “mobility” area in the control group have been established in 14 (19.4%) men and 10 (11.1%) women (Figure 1). There is a relation between mobility and age within the same group ($\chi^2=16.7$, df=2, p=0.05). There is a statistically significant difference in the relative shares of the responses about the “mobility” dimension between patients and control groups: men (U=3.05; p<0.05) women (U=5.58; p<0.05).

Difficulties in the “self-care” dimension have 24 (32.9%) male and 28 (38.4%) female patients. Problems are mostly reported by respondents aged above 60 - 40 (46%), living in villages 15 (51.7%), with primary education 12 (66.7%); respondents without a partner 18 (48.6%) and retired 42 (50.6%). There was a statistically significant difference between the “self-care” dimension and the respondents’ age ($\chi^2=10.85$, df=1, p=0.004), education ($\chi^2=14.64$, df=2, p=0.001) and employment ($\chi^2=21.27$, df=2, p=0.001). In the control group only 3 people have difficulties with self-care. The results are presented in Figure 1.

Problems in carrying out “daily activities” in patients have 33 (45.2%) men and 43 (58.9%) women. From them the highest percent belongs to patients aged above 60 - 57 (65.5%); living in villages 17 (58.7%); without a partner 25 (67.6%); with primary education 13 (72.2%) and retired 61 (73.5%). There is a relation between the sphere of daily activities and age ($\chi^2=17.41$, df=2, p=0.001), education ($\chi^2=11.28$, df=2, p=0.004) and employment ($\chi^2=35.48$, df=2, p<0.001). In the control group problems in this dimension are reported in 4 men (5.6%) and 9 women (10%).

Problems in the “pain/discomfort” dimension are reported in 53 male (72.6%) and 57 female (78.1%) patients. The highest relative share belongs to the individuals above 60 - 73 (83.9%), living in villages 27 (93.1%) and without a partner 29 (78.4%). There is a relation between the pain symptoms and age...
(χ²=11.78, df=2, p=0.003), place of residence (χ²=6.15, df=2, p=0.04), education (χ²=6.20, df=2, p=0.04), employment (χ²=13.61, df=2, p=0.001). Pain/discomfort is reported by 41 (56.9%) men and 44 (48.9%) women from the control group. The individuals above 60 prevail - 15 (78.9%); living in villages 7 (63.6%), without a partner 6 (66.7%), with secondary education 21 (53.8%) and retired 11 (91.7%). There is a relation between the sphere of pain/discomfort and employment (χ²=68.13, df=2, p=0.01), as well as age (χ²=6.05, df=2, p=0.04). There is a statistical difference in the relative shares of the responses regarding the pain/discomfort dimension between patients and female controls (U=3.13; p<0.05).

- The fifth dimension for HRQOL assessment is “anxiety and/or depression”. Anxiety/depression symptoms have been found in 42 (57.5%) male and 46 (63%) female patients. The cases of age over 60 - 54 (62.1%) and living alone - 26 (70.3%) prevail. There is a connection between the disease symptoms and age (χ²=6.24, df=2, p=0.04), place of living (χ²=13.74, df=2, p=0.005) and marital status (χ²=10.38%, df=2, p=0.006). In the control group problems in this area are reported by 39 (56.9%) men and 44 (48.9%) women. There are no statistically significant difference in the relative shares of the responses in this dimension between patients and controls: men (U=0.30; P˃0.05), women (U=1.75; P>0.05).

Health assessment using a Visual Analogue Scale (VAS): The average value of the health self-assessment on the scale of 0 to 100 is (52.74, SEM 1.69) points for the patients and (78.56, SEM 0.96) points for the respondents from the control group. There is a statistically significant difference in the mean values between patients and controls (t=13.5, p=0.001). The average values of health assessment of both studied groups by sex is presented in Table 1. There is a statistically significant difference between male patients and controls (t=7.7, p<0.05) and between female patients and controls (t=10.82, p<0.05). There is no statistically significant difference in the mean values between male and female patients and male and female controls (P>0.05).

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<th>Table 1. Comparative parameters of health assessment by sex in patients and control group using VAS</th>
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A correlation dependency was established between the mobility dimension and the areas of self-service and daily activities of the patients. The Spearman’s rank correlation coefficient was calculated. The rank assessment of the correlation coefficient between mobility and self-service is a straight significant connection (r=0.568). The connection between the dimensions mobility and routine activities is straight and significant (r=0.610), and between mobility and pain/discomfort – direct moderate connection (r=0.480). The better physical activity leads to better abilities for self-care and performance of daily routine.

Between the spheres of self-service and daily routine the rank assessment of the correlation coefficient is a direct significant relation (r=0.624); between self-care and pain/discomfort the relation is direct moderate (r=0.443); direct and moderate relation is established between daily routine and pain/discomfort (r=0.451). With the increase in the difficulties related to the pain symptoms from the disease, the problems during performance of daily routine and self-care also increase.

The obtained results can be compared with other studies in Bulgaria. D. Vankova et al. (2015) analyze the health-related quality of life (HrQoL) in a representative excerpt for the region of Burgas. Difficulties in at least one of the five dimensions are found in 548 (52.2%) of the respondents. The average health assessment obtained through EQ-VAS is 70 (SD±23). There is a relation between the health assessment and age, employment, education and income of the respondents. Those practicing sports and having a hobby give a higher estimate of health (t=8.87, p=0.001) and less problems in all studied spheres of EQ-5D (8).

E. Hristova et al. (2016) provide results of a HRQOL study in the southwestern region of Bulgaria. The average estimate of general health according to the scale EQ-VAS from 0 to 100 is 75.3±19.15. There is no statistically significant difference in the responses of the participants by gender (P>0.05). There is a decrease in the self-assessment of health with
increase in age. Difficulties are mostly found in the dimensions of mobility and self-care in men. In women the areas of anxiety and depression prevail ($\chi^2=7.69, p>0.05$) (9). The role of psycho-social factors for the development of cardio-vascular diseases is described in a number of publications. The positive subjective perception of personal happiness and well-being have a protective effect with regard to the development of severe cardio-vascular incidents. On the other side, factors as anxiety, depression, personality type showing social isolation and pessimism, have a negative impact on the cardio-vascular disease and death-rate (10-13).

Results of a study of personal anxiety of both groups of respondents through the questionnaire Trait Anxiety Inventory. A comparison of the mean values of anxiety in patients and controls with the Student-Fisher criterion and significance level $P=0.05$ was performed. The mean value of the patients’ responses is 45.78, and of the individuals from the control group 42.1 ($t=4.14, p<0.05$). There is a statistically significant difference in the level of anxiety for both studied groups. A statistically significant difference was established in the anxiety between male patients and controls ($t=4.5, p<0.05$); as well as between female patients and controls ($t=4.49, p<0.05$). The same test applied for patients with CIHD shows that there is no difference in the mean values of the anxiety test between male and female patients ($t=1.86, p>0.05$). The obtained results of the studied group of patients shows availability of anxiety in 72 (49.3%). In the control group there is anxiety in 35 (21.6%) respondents. The distribution by sex of both groups of respondents with anxiety is represented on Figure 2.

![Figure 2. Distribution of patients and control group by sex and anxiety](image)

Anxiety is typical mostly for patients living in small urban areas 20 (60%); single 13 (56.5%); with primary education 13 (72.2%) and retired 52 (62.7%). There is a relation between anxiety and place of living ($\chi^2=8.95, df=2, p=0.001$). A connection was established between anxiety and educational level ($\chi^2=9.53, df=2, p=0.009$); anxiety and occupation ($\chi^2=14.68, df=2, p=0.001$); anxiety and age ($\chi^2=9.55, df=2, p=0.008$). Sex and marital status of the patients are not a factor of anxiety ($\chi^2=0.98, df=1, p=0.321$); ($\chi^2=1.32, df=2, p=0.509$). The results of the anxiety test show a level above the norm for 17 (20.7%) respondents from the control group at the age of 40-59; married 24 (25.1%); with higher education 28 (23.1%); employed 32 (22.7%) and living in the cities 26 (24.5%). There is no dependency between anxiety and distribution of the respondents from the control group by demographic indices ($P>0.05$)

- The number and relative share of the studied groups with anxiety and problems in the studied areas of HRQL was established. The patients with personal anxiety and problems in the “mobility” dimension are 60 (61.2%). The individuals from the control group under the same indexes are 4 (16.7%). There is an association between anxiety and the “mobility” dimension in patients ($\chi^2=16.91, df=2, p=0.001$). A parametrical test of the working hypothesis was performed with significance level of $p=0.05$. There is a statistically significant difference in the relative shares of patients and controls with anxiety and difficulties in performing physical activity ($U=4.91; p<0.05$).
• The patients with difficulties in the “self-care” sphere and showing anxiety are 35 (67.3%). In the control group of respondents such problems are not available. There is an association between anxiety and the possibilities for “self-care” of the patients ($\chi^2=10.46, df=1, p=0.001$).

• The patients having difficulties in performing “daily routine” and with anxiety are 52 (68.4%). The individuals from the control group with the same problems are 2 (15.4%). There is a relation between anxiety and the dimension “daily routine” in the patients ($\chi^2=23.15, df=1, p<0.001$). There is a statistically significant difference in the relative shares of patients and controls with anxiety and problems in the sphere of daily routine ($U=4.68; p<0.05$).

• The respondents with CHID showing anxiety and difficulties in the “pain/discomfort” dimension are 62 (56.4%). In the control group the individuals with such problems are 19 (22.4%). Anxiety is a factor of increasing the pain symptoms in patients ($\chi^2=8.86, df=1, p=0.002$). There is a statistically significant difference in the relative shares of patients and controls with anxiety and pain/discomfort ($U=5.2; p<0.05$).

A possible association between anxiety and IHD is valid not only for people with proven clinical anxiety but also for those with light signs (Moser D). In patients with myocardial infarction anxiety may rise up to 70-80% (14). Severe manifestation of anxiety disorders are associated with a high cardiological risk. Evidence of studies show 1.3 – 3 times higher frequency of cardiologic incidents associated with serious fear and anxiety (15, 16).

Studies show high levels of anxiety on the background of IHD for 45% of the respondents. There is a correlation between anxiety and the course of the disease. Anxiety has the meaning of a predictor of myocardial infarction in men above 60. Conditions of stress and anxiety are associated with myocardial ischemia, as well as increased frequency of IHD (17). Similar dependencies have also been found by other researchers. Symptoms of depression: fatigue, reduced vital activity, increased appetite or loss of appetite, psychomotor disturbances, impaired concentration, low self-esteem, depressive feelings and repeated thoughts of lethal exit may be precursors for cardio-vascular diseases (18). The anxiety screening may significantly influence the prognosis of a coronary incident or functional limitations after a myocardial infarction. With respect to the spheres of impact, the following are most strongly influenced: social functioning, emotional balance and mental health (19, 20).

CONCLUSIONS

The relative share of patients with difficulties in the spheres of HRQL is the highest in the age group above 60, among those living in small urban areas, with primary education and single. Patients with IHD feel less difficulties in terms of self-care, feeding and self-service but with aging those problems accelerate. The persons from the control group have less problems in the studied areas of health-related quality of life.

Significant difficulties in mobility have been found in both sexes from the patients’ group. There is a dependency between HRQL and the demographic features of the patients. The reduced physical activity has a negative impact on the possibilities for self-service, daily routine, as well as the general health assessment.

Determinants of the quality of life in patients with CIHD are: age, marital status, employment, education, severity of the cardiac disease and anxiety. Lower self-esteem relating to the quality of life is shown in elderly patients without a partner, unemployed, with high class of angina pectoris.

The complex measurement of the quality indices related to the health status and behaviour, reflected through the personal assessment of the patient, may serve for establishment of more efficient methods of prophylactics and rehabilitation of patients with coronary heart disease.

REFERENCES