

POTENTIALS OF PSYCHOLOGICAL PREDICTION OF PATIENTS' THERAPEUTIC BEHAVIOR AFTER MYOCARDIAL REVASCULARIZATION

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Abstract

Introduction. The prognostication of high-tech heart surgery outcomes is a relevant aspect in medicine. However, in this field a prognosis of psychological nature is also in evidence, such as predicting the patients' return to work after myocardial revascularization when there are no medical contraindications for it, as well as predicting patients' adherence to supportive treatment after revascularization.

Aim: to evaluate the predictive potentials of the patients' psychological characteristics in terms of their returning to work and adherence to treatment after bypass grafting.

Methods. An interview for patients performed at different stages of treatment, which included questions on patient's labor activities and their adherence to treatment; psychometric techniques, the Big Five Questionnaire, the SF-36 Questionnaire, the Integrative Anxiety Test (IAT), the Lazarus and Folkman Ways of Coping Questionnaire (WCQ), the Technique for Diagnosing the Types of Attitude toward the Disease ("TOBOL") among them. 159 patients were studied in 2 stages: 1) 63 employable patients were examined regarding their return to labor activity after surgery; 2) 96 patients – regarding their adherence to medical recommendations after surgery.

Results. The discriminant analysis allowed to obtain the following data. The higher the scores on the "Extroversion" scale (BIG V), on the "Social Activity" scale (SF-36) and on the "Social Protection" scale (IAT), the higher the probability of the patient returning to work ($\Lambda = 0.76$, $\chi^2 = 16.67$; $p < 0.001$). The lower the value on the "anosognosic type" ("TOBOL") and the higher the value on the "sensitive type" ("TOBOL") in combination with high values of the "search for social support" scale (WCQ), the higher the likelihood of the patient being adherent to treatment ($\Lambda = 0.62$, $\chi^2 = 10.85$; $p < 0.01$).

Conclusion. The findings show a high significance of psychological characteristics for predicting the behavior of patients after myocardial revascularization. Further detailed study of these correlations is required, as well as consideration of implementing in the psychological support of patients at the cardiac surgery departments the results obtained.

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Keywords: *Cardiology, health outcomes, prognosis, psychological characteristics.*

1. Introduction

Myocardial revascularization (coronary bypass surgery or grafting) is a proven and effective method of treatment for the coronary heart disease (Bockeria, Alshibaya, Bendeliani, Nikonov, & Krymov, 2012; Velazquez, 2004). The medical prognosis for patients who have undergone such operations is favorable – this is evidenced by satisfactory health status and high rates of quality of life after postsurgical rehabilitation; patients get an almost complete cure. However, there is a whole range of problematic aspects following high-tech surgical treatment. Patients do not return to work, despite the absence of medical contraindications, new manifestations of the disease appear that are not directly related to the effectiveness of the surgery (Fonager, Lundbye-Christensen, Andreasen, Futtrup, Christensen, Ahmad, & Nørsgaard, 2014; Sousa, Serruys, & Costa, 2003).

Thus, the psychological aspect of the treatment and rehabilitation processes (Glazer, Emery, Frind, et al., 2002; Vasserman, Trifonova, & Shchelkova, 2011) comes to the fore, the role of the psychologist in following-up the patient at all stages of therapy becomes apparent – preparation for surgery, rehabilitation in a hospital, and then restoring a habitual way of the patient's life, taking into account the new possible limitations imposed by health.

At the same time, it is necessary to take into account which characteristics of patients' personality, their emotional state, coping strategies and attitude towards the disease affect rehabilitation, its effectiveness, patients' return to active life and work (in case of absence of contraindications), as well as adherence to supporting therapy, which helps to avoid relapses of the disease and prolongs the beneficial effect of the operation. Summarizing all the aforesaid, there is a need in considering a "psychological prognosis" in relation to patients undergoing surgical treatment of the coronary heart disease.

Within this context the **aim** of the research was set up, which was to evaluate the predictive potentials of the patients' psychological characteristics in terms of their returning to work and adherence to treatment after bypass grafting.

2. Material

159 patients of the Almazov National Medical Research Centre were studied in 2 stages.

1) 63 employable patients were examined regarding their return to labor activity after surgery. The mean age in this group was 57,7 years, with the following gender distribution: 87,3% men and 12,7% women.

This stage of the study included patients of working age who were able to and actually worked before the surgical treatment.

2) 96 patients – regarding their adherence to medical recommendations after surgery. The mean age in this group was 60,1 years, with the following gender distribution: 82,5% men and 17,5% women.

Patients from both groups suffered from coronary heart disease and underwent surgical treatment – coronary bypass grafting. The duration of the CHD at the time of surgery was different, from 1 year to 25 years. Most of the patients had secondary diagnosis such as hypertension, gastric ulcer, obesity, arthrosis, colitis and some others.

Those patients who suffered mental disorders or postoperative complications were excluded from the study.

3. Methods

The methods used were the following. An interview for patients; an interview for doctors and several psychometric techniques. The patients' interview was performed at different stages of treatment, depending on the questions. Some of the measurements were made before the surgery and some of them – after it. It included questions on patient's socio-demographic characteristics, their family, labor activities, stress situations, habits and their therapeutic behavior. The doctors' interview included questions on patient's health status, surgery outcomes and their adherence to treatment, if they followed the recommendations and were willing to go on with the treatment. A wide range of psychometric techniques were also used, among them:

- The Big Five Questionnaire, to study patients' personality features,
- the SF-36 Questionnaire ("The Short Form (36) Health Survey"), to assess patients' health-related quality of life,
- the Integrative Anxiety Test (IAT), a modification of the Charles Spielberger's "State-Trait Anxiety Inventory", aimed to a differentiated assessment of anxiety as an emotional state and anxiety as a stable personality trait,
- the Lazarus and Folkman Ways of Coping Questionnaire (WCQ), to study patients' most frequently used coping strategies,
- the Technique for Diagnosing the Types of Attitude toward the Disease ("TOBOL"), which aims to diagnose various types of personal reaction to the disease (i.e., attitude toward the disease) in patients with somatic diseases, mainly chronic.

4. Results

The characteristics that make an important contribution in determining whether the patient returns to labor after surgical intervention were selected from a wide range of data on the psychological characteristics of patients obtained in the study by means of mathematical-statistical analysis (discriminant analysis).

The formula of the function presented below is obtained from the results of the analysis and allows to evaluate the contribution of various variables to the definition of a patient, it allows to predict that each new coronary heart disease patient waiting for surgical treatment will return or not return to work after the surgery.

$$F1 = -0,113 \times A + 0,235 \times B + 0,038 \times C + 0,512,$$

where the variables are:

A – the “Extraversion” scale (BIG V),

B – the “Social Protection” scale (IAT),

C – the “Social Role Functioning” scale (SF-36).

Thus, the above formula implies the following.

The higher the scores on the “Extroversion” scale (BIG V), on the “Social Role Functioning” scale (SF-36) and on the “Social Protection” scale (IAT), the higher the probability of the patient returning to work (Lambda = 0.76, $\chi^2 = 16.67$; $p < 0.001$).

Therefore, psychological features reflecting the characteristics of patients’ social contacts and their quality have a prognostic value in relation to patients’ return to work.

The data obtained in the study of the psychological characteristics of patients with varying degrees of adherence to treatment after coronary bypass grafting, were subjected to several types of mathematical-statistical analysis, including discriminant and multiple regression.

The formula of the function obtained from the results of the analysis is given below. It allows to evaluate the contribution of various variables to the classification of a patient in the group of those who are adherent or not adherent to treatment after surgical treatment.

$$F2 = -0,545 \times D + 0,505 \times E + 0,339 \times J,$$

where the variables are:

D – the “Anosognosic type” of attitude toward the disease (“TOBOL”),

E – the “Search for social support” scale (WCQ),

J – the “Sensitive type” of attitude toward the disease (“TOBOL”).

Thus, the above formula means as follows. The lower the value on the “anosognosic type” (“TOBOL”) and the higher the value on the “sensitive type” of attitude toward the disease (“TOBOL”) in combination with high values of the “search for social support” scale (WCQ), the higher the likelihood of the patient being adherent to treatment (Lambda = 0.62, $\chi^2 = 10.85$; $p < 0.01$).

5. Discussion

The patient’s therapeutic behavior, in particular after coronary bypass grafting, is associated with a large number of factors. We cannot doubt the influence of the social environment, the economic status of the patient, factors of the health care system, etc. on the therapeutic behavior. All these aspects must be taken into account, but we must not forget the importance of patient’s personality, his/her psychological characteristics. The way the patient understands and perceives the disease, how he/she perceives the treatment, what support he/she receives from the doctor and family, as well as his/her cognitive attitudes, personality traits and coping strategies directly influence the type of behavior that the patient will show after surgical treatment (Iakovleva, 2016). The role of the psychologist is to identify and adjust these factors with the aim of facilitating favorable patient’s behavior in the therapy process and increasing the effectiveness of treatment.

6. Conclusion

The findings show a high significance of psychological characteristics for predicting the behavior of patients after myocardial revascularization. Further detailed study of these correlations is required, as well as consideration of implementing the results obtained in the psychological support of patients at the cardiac surgery departments.

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