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ORYGINALNY ARTYKUŁ NAUKOWY

COMPLIANCE WITH MEDICAL AND NURSING RECOMMENDATIONS IN A GROUP OF PATIENTS AFTER HEART TRANSPLANTATION

PRZESTRZEGANIE ZALECEŃ LEKARSKICH I PIELĘGNIARSKICH W GRUPIE PACJENTÓW PO TRANSPLANTACJI SERCA

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Summary

Background. Heart transplantation is a complex surgical procedure for the treatment of end-stage heart failure, performed only in six Cardiac Surgery Clinics in Poland. After a heart transplantation, the patient requires specialist therapy and care, together with a change of lifestyle. The aim of the study was to analyze adherence to therapeutic recommendations, together with an assessment of the social activity of patients after myocardial transplantation.

Material and methods. The study included 50 patients (27♂, 23♀) who had undergone heart transplantation. The research method was a diagnostic survey, and the research tool was a questionnaire handed in personally.

Results. Among respondents, 78% declared that their current health condition was much better than before the transplant, 85% of the examined patients assessed their current health as good or very good, and 40% of patients said that the necessity of using immunosuppressive drugs negatively affected their everyday lives. As many as 48% of patients attested to a significant loosening of contacts with extended family and friends, and not undertaking professional work.

Conclusions. Most patients after heart transplantation changed their lifestyle, but not sufficiently enough, especially when we consider following the rules of healthy eating and practicing sports regularly on a daily basis. In patients after heart transplantation, apart from physical rehabilitation, improvement in the reconstruction of social relations would be highly recommended as well, because of the low percentage of the surveyed patients returning to their

professional activity, and comprehensive care with special regard to the educational actions of the medical team.

Keywords: treatment adherence, heart transplantation, social activity, professional work, lifestyle

Streszczenie

Wprowadzenie. Przeszczep serca jest złożonym zabiegiem operacyjnym leczenia schyłkowej niewydolności serca, wykonywanym jedynie w sześciu Klinikach Kardiochirurgii w Polsce. Pacjent po transplantacji serca wymaga specjalistycznej terapii i opieki wraz ze zmianą swojego stylu życia. Celem pracy była analiza przestrzegania zaleceń terapeutycznych wraz z oceną aktywności społecznej pacjentów po przeszczepie mięśnia sercowego.

Materiał i metody. Badaniem objęto 50 pacjentów (27♂, 23♀), po przebytej operacji transplantacji serca. Metodą badawczą był sondaż diagnostyczny a narzędziem badawczym – kwestionariusz ankiety wręczany osobiście.

Wyniki. Wśród badanych, 78% osób deklaruje, że ich obecny stan zdrowia jest znacznie lepszy niż przed przeszczepem, 85% badanych ocenia swój obecny stan zdrowia jako dobry i bardzo dobry, przy czym 40% respondentów podaje, że konieczność stosowania leków immunosupresyjnych ma niekorzystny wpływ na ich codzienne funkcjonowanie. Aż 48% osób stwierdzało znaczne osłabienie kontaktów z dalszą rodziną i z przyjaciółmi oraz brak podejmowania aktywności zawodowej.

Wnioski. Większość pacjentów po przeszczepie serca zmodyfikowało swój styl życia, jednak w niewystarczającym stopniu, szczególnie dotyczy to przestrzegania zasad zdrowego żywienia oraz regularnego uprawiania sportu w codziennym życiu. U chorych po operacji transplantacji serca oprócz rehabilitacji ruchowej wskazana byłaby intensyfikacja rehabilitacji społecznej ze względu na niski procent ankietowanych pacjentów powracających do aktywności zawodowej

oraz holistyczna opieka ze szczególnym uwzględnieniem działań edukacyjnych zespołu medycznego.

Słowa kluczowe: przestrzeganie zaleceń lekarskich, transplantacja serca, aktywność społeczna, praca zawodowa, styl życia

Introduction

The development of heart transplantation gives hope for recovery and improvement of the quality of life for patients with end-stage heart failure, for whom it is often the only effective method of treatment [1]. It is a procedure performed only in highly specialized transplantation clinics around the world. In Poland there are only six such centers [2]. After a heart transplant people can enjoy a "new life". However, they must comply with preventive recommendations. Lifestyle changes after heart transplantation include immunosuppressive therapy, a proper diet, stopping the use of stimulants, avoiding infections, and regular check-ups at the transplantation center [3]. Transplant patients require the specific care of the entire therapeutic team. It is particularly important to educate the patients to avoid post-transplantation complications with acute cellular rejection [4] after returning to everyday life.

Aim of the work

The study aimed to assess adherence to therapeutic recommendations in patients after heart transplantation, along with the evaluation of their social activity.

Material and methods

The study population of the research comprised 50 respondents (n= 50) who underwent heart transplantation in the Silesian Centre for Heart Diseases in Zabrze, Poland, between 2016 and 2021. The number of samples was determined for the research sample by using a sample calculation with a known population. All patients who met the inclusion criteria and accepted the study were included with the complete count sampling method. 89% of the sample was reached. The study included 27 men and 23 women between the ages of 19 and 67 (mean age 46±8) The majority of respondents possessed secondary education (58%), vocational – 34%, and higher – 8%.

Table 1. Sociodemographic characteristics of sample

Demographic characteristic	n	%
Gender		
Male	27	54
Female	23	46
Education level		
Primary	17	34
Secondary	29	58
University	4	8
Marital status		
Single	24	48
Married	26	52
Place of residence		
Rural	14	28
Urban	36	72
Time since transplantation		
Up to 1 year	21	42
More than 1 year	29	58

Notes: n – number of respondents.

The diagnostic research method was used to achieve the assumed goal. The research technique was a survey. The research tool was a questionnaire consisting of questions on sociodemographic data, the World Health Organization WHOQOL-BREF (short version) to assess quality of life, and questions on adherence to specific medical recommendations after heart transplantation. The survey forms were distributed one by one on paper and were filled out by the patients themselves. Participation in the study was voluntary and anonymous, and patient consent was obtained after being informed of the aims of the study. The respondents signaled their agreement to participate in the study by selecting the appropriate answer at the beginning of the questionnaire. Respondents' answers are subjective statements because they are not verified. All respondents completed post-heart transplant medical adherence education in the first month after heart transplantation. The education was an element of the rehabilitation process, and was conducted by nurses in the first month after heart transplantation. The criteria for inclusion in the study were status of the patient after heart transplantation, completion of medical education, voluntary participation, 18 years and over, being conscious, and having a cognitive level of reading and understanding. The exclusion criteria were lack of consent to participate in the survey, no medical education, or being in the children's group (0-18 years old).

Results

The research comprised patients who had had a heart transplant performed more than a year before the survey was conducted (58% of respondents) and patients who had had heart transplants within one year (42% of respondents). More than half of the patients surveyed (52%) assessed their current health as good, 34% as very good, and 8% as average. Only 6% of the respondents, mostly in the early period of convalescence, stated that their current state of health was unsatisfactory. Much better health than before the transplant was declared by 78% of

patients, slightly better – 12% of patients, 6% of them could not notice any difference in their health, and only 4% of patients felt slightly worse. None of the examined patients assessed their current state of health as significantly worse than before the transplant. The conducted research revealed that more than half of the surveyed patients (58%) did not feel any pain or discomfort related to the performed procedure, and the remaining patients declared slightly or moderately worsened well-being during the early postoperative period.

At the time of completing the survey, 66% of respondents rated their physical condition as good or very good, 30% as moderate, and only 4% as poor. In relation to the period after the heart transplant, physical capacity improved significantly in 58% of the subjects, while in 34% of them only to a moderate degree. None of the tested patients declared that their physical capacity was much worse than before the transplant, whereas 4% of them assessed it as slightly worse or the same compared to the period before the operation. Among the unquestionable benefits of rehabilitation, the vast majority of respondents underlined an improvement in physical capacity with increased levels of independence and better general well-being, while 10% of the patients noticed reduced pain in the area of the postoperative wound as a result of it. On the list of the most frequently practiced sports among people after heart transplantation were: cycling, hiking and Nordic walking. Swimming, running and gym exercise gained much less interest. More than half (56%) of the respondents declared that they did not practice sports regularly.

A balanced diet and avoiding products that can affect the concentration of immunosuppressive drugs in the blood are important elements of recovery after a heart transplant. Only 26% of transplant patients properly followed the rules of healthy eating, 42% of the respondents reported a slight improvement of eating habits, but they were not changed at all in 32% of the surveyed patients. None of the patients declared worsening or a significant deterioration of their eating routine. When asked about products that should be avoided after

heart transplantation, most people mentioned grapefruit (70%), and fried foods, high-sugar drinks, blue cheese, raw vegetables and fruits, citrus fruits, alcohol and raw meat were reported less often. The most rarely listed items were mushrooms and pork, and it is interesting to note that 8% of patients could not answer the question about prohibited food articles after heart transplantation.

Smoking cigarettes has an unfavorable effect on the circulatory system, causing arterial hypertension, cardiac arrhythmias and atherosclerosis, promoting the formation of aortic aneurysms [5]. In the group of tested patients none of them were smokers, and only 18% of respondents had been addicted to cigarettes before the operation.

Complications during immunosuppressive therapy are another problem in the daily functioning of people after heart transplantation. Immunosuppressive drugs have a negative influence on the patient's well-being and significantly reduce the body's immunity, with the possibility of causing, among other things, diabetes, hypertension, kidney failure, osteoporosis, and cancers with gastrointestinal bleeding [6]. In the study group, only 60% of respondents did not experience the impact of immunosuppressive treatment on their life functions. However, among the post-transplant ailments on the list of side effects of immunosuppressive drugs, the most frequently mentioned ones were: mood changes (60%), attention deficit disorders (52%), obesity (32%), diabetes (28%), vision deterioration (28%) and infections (14%). The inability to associate these symptoms with immunosuppressive therapy may mean that patients lack knowledge about the side effects of immunosuppressive drugs.

The ability to recognize the symptoms of transplant rejection is necessary for quick identification, contact with the transplant team, and implementation of glucocorticosteroid therapy [7]. In the conducted work, as many as 54% of respondents admitted not knowing the clinical symptoms of heart transplant rejection.

Another important element in the process of returning to full health is mental well-being [8]. In the study, 72% of patients assessed their current emotional state as good or very good, 18% as average, 10% as bad, and none of the respondents found their emotional condition to be very bad. Despite the long and difficult therapeutic process after heart transplantation, the majority of heart transplant patients (62%) declared improvement in their emotional functioning, with generally improved health and better physical capacity. Unfortunately, in 24% of the subjects, the emotional state did not change, and its deterioration was declared by 14% of the respondents, mainly due to long-term hospitalization in the pre-transplantation period, the need for constant outpatient care, and difficulties in implementing preventive recommendations.

What is especially important in the process of returning to everyday life of the transplant patient is the influence of the family, both in relation to care and psychological support. The improvement of family relations was felt by 40% of those surveyed, while 58% of them did not observe the impact of the procedure on the contacts and links with their families, and 2% of the people even declared deterioration in this sphere after heart transplantation.

Undertaking professional work again undoubtedly helps in returning to a full social life. The research showed the lack of taking up professional duties after myocardial transplantation in 92% of the patients, and only 8% of the respondents declared resuming professional activity. A reduction of activity in social life was also observed. Almost half of those tested (48%) reported a significant weakening of contacts with family and friends.

Discussion

For patients with end-stage heart failure, a transplant is a chance for a “second life”, with a significant improvement in their health, and the length and quality of life [3,9,10].

However, there is a constant risk of complications after immunosuppressive treatment, recurrent infections with the possibility of occurrence of kidney failure, and the development of diabetes [8]. Life after a heart transplant should be shaped all over again, along with undergoing changes in lifestyle, the way of eating, family relationships and social functioning.

In the examined group of patients, eating habits improved significantly also by stopping of the use of stimulants, but still far too few of the respondents regularly practiced sports in everyday life.

The subjective feeling of good quality of life is significantly influenced by the improvement of physical condition, which changes fundamentally compared to the pre-transplantation period with end-stage heart failure, remaining, however, still below the standard in comparison to the performance of healthy people [11].

Our own research proves that rehabilitation played an important role during postoperative convalescence, thanks to which most of the respondents better tolerated physical effort, with the improvement of their well-being and increase of independence in everyday life. Similarly, in the study conducted by Marcinkowska et al., as many as 98% of the patients were of the opinion that rehabilitation helped them to regain physical fitness along with the better quality of their life [12]. In patients after heart transplantation, despite the usually occurring resting tachycardia, good tolerance to physical effort is observed [13].

Over the last few decades, more and more attention has been paid to the use of physical exercise as a tool for both primary and secondary prevention of cardiovascular diseases [14, 15]. Despite the huge benefits resulting from regular exercise, our work has shown that it is still insufficiently used in therapeutic intervention. As many as 56% of the respondents declared not practicing sports. In literature reports, 88% of the surveyed people reported regular physical activity after heart transplantation, with the improvement of functional efficiency [16]. It is

necessary to intensify the education of patients when it comes to physical rehabilitation activity in Polish transplant centers.

Since the first heart transplantation in 1967, survival after heart transplantation has been steadily improving. However, problems connected with immunosuppressive therapy are still common. Insufficient immunosuppression may result in transplant rejection, while excessive immunosuppression, by weakening body immunity, may be the cause of recurrent infections, malignant tumors, or chronic kidney disease, with reduced long-term survival after heart transplant [17,18].

In studies conducted in the United States one can notice that the most common after-effects of rehospitalization within a year after myocardial transplantation are infections, atrial fibrillation, kidney failure, gastrointestinal bleeding, pneumonia, cytomegaly, and diabetes [19, 20]. 25% of those treated with nephrotoxic cyclosporine in the first year after heart transplantation reported ailments of the urinary system [21].

Very worrying and requiring further education is the lack of sufficient knowledge of patients about the side effects of immunosuppressive medicines and the symptoms of transplant rejection. In our own research, 60% of respondents stated that immunosuppressive treatment had no effect on their life functions, mentioning at the same time such ailments as mood changes and attention deficit disorders, together with obesity and diabetes, and deterioration of vision, which may be connected with immunosuppressive therapy. In a publication from 2012, more than half of the patients complained about being overweight and hypertension, while claiming earlier that immunosuppressive drugs did not affect their daily functioning [22].

According to literature reports up to 35% of people forgot to take immunosuppressive drugs, and 6% of them discontinued immunosuppressive treatment without informing the attending physician [4]. Such behavior may lead to the rejection of the transplanted organ and, consequently, to the death of the patient. An important role of the transplant team is to

implement education at every stage of therapy, so that the patient consciously continues treatment at home, with maintaining the proper rules of taking immunosuppressive drugs, which is a necessary condition for his or her return to active life after transplantation [23]. Thanks to modern immunosuppressive treatment and continuous biopsy supervision, significant progress has been made in early detection and in reducing the occurrence of acute cellular rejection, with the greatest risk during the first month after surgery [24]. The symptoms of transplant rejection are characteristics of congestive heart failure with impaired effort tolerance and cardiac arrhythmias which are often preceded by ongoing infection [25]. In our own study, more than half of the respondents (54%) demonstrated a lack of knowledge of the symptoms of transplant rejection, which is a highly worrying fact posing a threat to their health and even life.

Heart transplant patients, despite the trauma associated with the operation, show positive changes in the mental sphere, with an increase in self-esteem, internal transformation, along with the improvement of family contacts. The awareness of successful transplantation becomes a source of motivation for further actions, with appreciation of the regained life and new moral attitudes [26]. In our own research, most of the respondents assessed their current emotional state as satisfactory. In the group of young people after organ transplantation, recipients were much happier because the transplant gave them a second chance for a new life, which was appreciated more by them now [27]. Living with a severe illness may very often make people more aware of the value of life [27].

Heart transplantation is very challenging not only for the patient, but also for the whole family, creating new requirements, duties and often a change of roles in the family system. A united family struggles with the disease properly, with full acceptance of the ill person, and his or her problems and choices [28]. In the study conducted by us, 40% of respondents felt an improvement in family relations. Similarly, in the literature reports, most people after heart transplant reported a positive change in the way they were treated by their family members [3].

On the other hand, young people after transplantation, feeling normal and healthy, can perceive the intensified family concern about their health as overprotectiveness, and feel a lack of independence [27].

In our own research, changes in the social relationships of people after heart transplantation along with significant weakening of contacts with friends were observed, which is consistent with literature reports [3]. There is a need to intensify the education of patients in the field of full return to social activity, because the feeling of support from the side of family and friends helps them in the recovery process [3].

Professional work undoubtedly has an impact on shaping a person's life. Thanks to it, one can satisfy one's material needs, develop one's competencies and expand social contacts [29]. In our own work, only 8% of the respondents were professionally active people. Similarly, in the study dated 2012, it was shown that as many as every second patient resigned from professional work, every tenth one took a job in another capacity, and only every fifth person continued to work in the same profession and in the same position [3]. Whereas, in the reports from the United States, a significant increase in the number of employed people can be observed already within a year after the performed heart transplantation [30].

A survey of patients after heart transplantation showed the difficulties in complying with therapeutic recommendations and the need for educational activities. It would be meaningful to continue further research with an increased number of respondents.

Conclusions

In patients after heart transplantation it would be advisable to intensify not only physical rehabilitation, but also social rehabilitation due to the low percentage of the surveyed returning

to professional activity, and a significant reduction in contacts, including deterioration of social relations.

People after heart transplantation require holistic care with particular emphasis on the educational activities of the professional medical team, both during numerous hospitalizations and during outpatient follow-up visits in specialist clinics.

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