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Original research article

The changes in quality of life during the first year after the renal transplantation: The influence of physical activity and nutrition



Barbora Strejcová^{a,*}, Andrea Mahrová^a, Klára Švagrová^a,
Milena Štollová^b, Vladimír Teplan^b

^a Charles University, Faculty of Physical Education and Sports, Sport Research Centre, Prague, Czech Republic

^b Institute for Clinical and Experimental Medicine, Nephrology Department, Prague, Czech Republic

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ABSTRACT

The aim of the study was to define the positive effect of physical activity and nutrition on the health related quality of life in renal transplant patients in the first year following the surgery. Interestingly, the results showed that the quality of life evaluated by SF-36 of physically active renal transplant patients reached or even overreached the values of healthy individuals.

We assessed the influence of intervention (physical activity, nutrition or both) on the health related quality of life. The health related quality of life was evaluated using standardized questionnaire KDQOL-SF™ (part of the generic questionnaire SF-36), and in the period one month before transplantation (patients filled the questionnaire retrospectively during their hospitalization in the first 14 days after the surgery) and approximately 10 months after the transplantation. There were 103 patients in this study (45 females, 58 males) of the age in the range 23–75 years with the average 54.7 years (± 12 years). In the period when the patient was physically active or had special nutritive therapy (9.5 months after the renal transplantation) the quality of life evaluated using SF-36 ($n = 94$) statistically significantly improved in all domains except for physical activity (Wilcoxon test, $p < 0.05$) that was lower than the values of healthy individuals in the Czech Republic. The results did not show any statistically significant difference among the items of the life quality and type of intervention done (ANOVA, $p < 0.05$). Also the testing of the differences among particular types of intervention with regard to the evaluation of the quality of life did not show any statistically significant changes.

There is a positive impact of physical activity on the quality of life of the renal transplant patients. It seems to be the most effective tool improving the quality of life, when physical activity is combined with nutrition therapy.

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* Corresponding author at: José Martího 31, 162 52 Prague 6, Czech Republic.

E-mail address: bara.strejcova@seznam.cz (B. Strejcová).

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Introduction

The term quality of life has been used since the 1980s of the 20th century mainly in clinical studies. Nowadays, definition of the quality of life means to find and identify factors, helping to live good and meaningful life as well as the feeling of happiness. While talking of quality of life, we are mainly interested in the impact of the illness and in the restrictions of the illness on the mental health. The quality of life also includes the information about patients' life and their overall satisfaction [1,2].

In the year 1997 [3] renal transplant patients taking part in World Transplant Games have been interviewed in terms of the quality of life. Interestingly, the quality of life of such patients seemed to be the same or even better than that of healthy people when evaluated using SF-36 questionnaire. This study was one of the first studies dealing with this topic [4]. The quality of life after the renal transplantation changes life in every single aspect. Patients after renal transplantation have to get used to the changes in the life style, they get rid of the time demanding dialyses and have more time to meet other people or they even go back to work [5].

Patients after renal transplantation improve the quality of life in short and long-term follow up [6]. Renal transplant patient do not reach the life quality of healthy people, the factors debilitating the quality of life are emotions, sexual problems and headache [7].

All chronic diseases affecting kidneys (glomerulopathy, interstitial nephritis, hereditary nephropathy, diabetic nephropathy, etc.) can possibly lead to renal failure. Treatment of renal failure comprises of renal replacement therapy among these there are hemodialysis (and the other methods of blood purification), peritoneal dialysis and renal transplantation [8]. The renal transplantation re-establishes more or less all renal functions (excretion, regulatory, metabolic and endocrine) but at the cost of permanent immunosuppression. Dialysis enables only partial or most of the time only intermittent elimination. The transplantation is without doubt quantitatively better method, although it is not risk-free [9]. Risk factors such as inactivity, obesity, smoking, etc. are also risk factors in renal transplant patients. The renal transplantation itself brings another risk factor, the immunosuppression [9]. Immunosuppression lasting just one year usually has good results, in 5 year follow up the results are not that satisfactory (66% survival, 79% patient survival). Immunosuppressant can unfortunately contribute to other complications affecting the patient after one year after the surgery. It is necessary to find the balance between the suppression of the immune reaction and its side effects [9]. Immunosuppressant can contribute to higher rate of infections. The most common complications arising in connection with immunosuppressant appear in the first six months after the surgery and are connected to the state of patient before the surgery or in peri- or postoperative period [9].

The important factor influencing the mobility and self-sufficiency of renal transplant patients is the functioning of motor system (decreased physical fitness and emergence of functional disorders of motor system everything in connection with the renal transplantation and precedent dialysis). Another problem to mention is rather high incidence of

psychiatric disorders [10,11]. Watanabe and Hiraga [12] noticed that there are more than 20% patients suffering from different psychiatric disorders although these are not serious symptoms. Iwashige et al. [13] registered psychological disorders in approximately 43% patients in the group of renal transplant patients. Such psychological disorders include depressive episodes, anxiety and delirium. The moment initializing depressive episode in renal transplant patient is frequently when the draft is rejected [13]. During the first year after the renal transplantation, more than one half of the patients suffer from anxiety, suicidal rate is higher and the most common psychiatric complication is delirium as well as organic mood syndrome [12].

Psychological self-esteem and the patient's surroundings are also important for the quality of life. The life quality is at the same time influenced by the physical condition of the person and functional status of the person that is an individual ability to perform normal daily activities required for independent life. Psychological state is also determined by individual mood, individual attitude to life and illness, how the patient deals with the disorder and its treatment, personality, perception of pain, etc. [11,14,15].

The quality of life has a wide range of contexts and is generally defined as subjective measure of happiness in life. The quality of life is defined as a state of physical health and the absence of symptoms of the disease and its treatment, globally the definition includes also psychical well-being, social life, religion and economical aspects, etc. The other factors influencing the life quality include the age, the gender, polymorbidity, family life, values, cultural life, etc. The overall quality of life resumes all the above mentioned factors [16,17].

It has been found that physical activity in renal transplant patients decreases the incidence of depressive episodes and anxiety. Physical activity positively influences the self-esteem, sleeping, stress adaptation, stress at work, social interaction, and helps people to return back to normal life. The important part of physical activity performed in groups of patients is reciprocal encouragement and subsequent feeling of belonging and integration in the society [18].

Benefits of physical activity in points [19]:

- Decreases the risk of cardiovascular diseases.
- Prevents from hypertension or stops its aggravation.
- Is necessary for preservation or gaining muscle mass, structure and functioning of joints.
- Decreases the symptoms of depression, anxiety and ameliorates the mood.
- Improves well-being and physical functional abilities and improves the quality of life in patients with impaired health.

The aim of the study is to assess the positive effect of physical activity and nutrition therapy on the quality of life in renal transplant patients in one year follow up.

Materials and methods

The project is based on long term follow up of renal transplant patients divided into the groups according to two experimental factors: nutrition and physical activity. There were 4 groups

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