

DOI: 10.15825/1995-1191-2023-1-62-67

ASSESSMENT OF THE QUALITY OF LIFE OF ORGAN RECIPIENTS BASED ON THE RESULTS OF THE FIRST RUSSIAN TRANSPLANT GAMES

T.Yu. Shelekhova¹, E.E. Achkasov¹, I.A. Lazareva¹, Yu.A. Krumkacheva¹, A.A. Sungatulina², S.V. Gautier^{1, 2}

¹ Sechenov University, Moscow, Russian Federation

² Shumakov National Medical Research Center of Transplantology and Artificial Organs, Moscow, Russian Federation

Objective: to evaluate the role of physical activity (at sports games) in improving the quality of life of organ recipients. **Materials and methods.** We examined 42 adult lung, heart, kidney and liver recipients, and patients undergoing renal replacement therapy (mean age 42.6 ± 12.09 years) – participants of the First Russian Transplant Games. The results were analyzed. Quality of life of the recipients was assessed using the nonspecific SF-36 questionnaire. **Results.** After solid organ transplantation, the interviewed recipients answered that they try to lead an active lifestyle, to engage in accessible physical activities, and to participate in sports events intended for organ recipients. Assessment of the quality of life according to the SF-36 questionnaire showed that all the participants had high scores in terms of the physical and psychological component, which is associated with regular physical training and sports. **Conclusion.** Physical exercise and active participation in sports activities are an important component in the socialization and rehabilitation of organ recipients. These two factors also improve the psychological and physical components of the quality of life of the recipients.

Keywords: transplantation, physical rehabilitation, physical exercise, dialysis, quality of life, exercise therapy, periods of medical and social rehabilitation, sports.

INTRODUCTION

Physical activity plays an important role in shaping a person's physical and psychological health. An active lifestyle reduces the risk of developing socially significant diseases like type II diabetes, cancer, and hypertension. It has a beneficial effect on the quality of life of both healthy people and organ recipients, and patients on renal replacement therapy [1–5].

Sports competitions, games, and festivals are organized among organ transplant recipients to promote physical fitness and sports, increase public awareness and popularize the possibilities of transplantation and organ donation [6]. People who have undergone organ transplantation can once again demonstrate high physical and mental health after rehabilitation [7].

After organ transplantation, it is possible to lead an active lifestyle, engage in physical training and sports, as evidenced by various sports events among people with organ transplantation. For example, the World Transplant Games have been held since 1978, and patients from Russia also take part in them [8, 9].

In Russia, a public charity event titled “People for People's Sake” (Fig. 1) has been held from 2011 to 2016. The event included a football match among patients, doctors, and public figures in order to attract society to

the problem of organ donation in Russia [10]. But since then, no systematic sports competitions for people with transplanted organs have been held in our country.

Thanks to the organizers of the project – Shumakov National Medical Research Center of Transplantology and Artificial Organs, NEFRO-LIGA (an interregional public organization of nephrology patients), Pirogov Russian National Research Medical University and Svaya Atmosfera (an interregional charitable public organization) – the First Russian Transplant Games were held in Moscow from July 29 to 31, 2022 with the participation of over 70 recipients from all regions of the country. Contestants competed in running, football, basketball, volleyball, tennis, badminton, swimming, darts, Nordic walking, and chess [11].

In between competitions, master classes in yoga, bowling, and dancing were held for the participants. Patients not only competed in various sports disciplines, but also acted as coaches. For example, training in Zumba fitness dance was held by a teacher, who is a renal replacement therapy patient.

All participants noted that such sporting events helped them to unite and meet acquaintances with whom they communicated only online, find new friends and support among patients, doctors, volunteers and orga-

nizers, try themselves in different sports and activities, visit a new region or country, become an example for people who are afraid to undergo transplantation. Life after transplantation can again be full, rich with aspirations and joys of victories, including victories over oneself (Fig. 2).

The quality of life of organ recipients depends on both the course of the disease itself and the type of renal replacement therapy. An important criterion for assessing morbidity and mortality, as well as the health of the population, is to determine the relationship between the quality of life and the health of patients [12, 13]. With the help of questionnaires that present physical, emotional, mental, social and behavioral components, it is possible to identify and standardize the indicators of the quality of life of those under study [14]. It is the analysis of a patient's quality of life that provides a complete picture of the psychosocial and physical impact of organ transplantation and renal replacement therapy.

MATERIALS AND METHODS

Seventy adult lung, heart, kidney and liver recipients, as well as patients undergoing renal replacement therapy from 18 regions of the Russian Federation (Volgograd Oblast, Sverdlovsk Oblast, Republic of Tatarstan, Kaliningrad, Omsk Oblast, Moscow and Moscow Oblast, Republic of Buryatia and others) took part in the sport competition. Before the competition, all participants underwent a professional examination by a doctor, tests and a doctor's report confirming satisfactory graft function were provided. No adverse reactions were noted during the competition. A questionnaire was administered to 42 contestants at the First Russian Transplant Games who underwent organ transplantation and patients on renal replacement therapy. At the time of the competition, the recipients had different postoperative periods: minimally, 6 months after transplantation and maximally, 18–19 years after transplantation; durations of renal replacement therapy were minimally, 3 years and maximally,



Fig. 1. Public charity event “People for People’s Sake”



Fig. 2. Group photo of winners of the First Transplant Games (2022)

19 years. Participants, at will, were offered a questionnaire developed by us and a quality-of-life testing using the SF-36 questionnaire.

Quality of life (physical and mental component) was assessed according to 8 scales, which had a scoring system (from 0–100 points): physical functioning (PF), role-physical functioning (RF), bodily pain (BP), general health (GH), mental health (MH), role-emotional functioning (RE), social functioning (SF), and vitality (VT).

RESULTS

Questionnaires were analyzed for 42 participants of different ages: from 19 to 70 years old (mean age, 42.6 ± 12.09), who underwent transplantation of various organs and patients on renal replacement therapy (Table).

Seven heart recipients (5 men and 2 women), 3 liver recipients (1 man and 2 women), 2 lung recipients (women), 23 kidney recipients (9 men and 14 women), including 3 women after repeat kidney transplantation, and 7 patients (3 men and 4 women) undergoing renal replacement therapy (hemodialysis) participated in the survey.

Patients with the most active lifestyle, both before the disease and after surgical treatment, participated in the sports games. Only 6 out of 42 participants surveyed were not engaged in physical training before the disease, the rest led an active lifestyle, played football, mini-football, wrestling, athletics, sports dancing, swimming, volleyball and other amateur sports. Seven of them were engaged in professional sports and had different sports titles: the 2nd category for youth in cross-country skiing and track and field athletics, the 2nd category for adult volleyball, candidate master of sports in acrobatics and biathlon, master of sports in cycling, champion of Tatarstan in mini football in 2002.

After solid organ transplantation, all patients under study tried to lead an active lifestyle, engage in moderate

Table
Distribution of contestants by sex, age
and transplanted organ (n = 42)

Age, gender		Transplanted organ					Renal replacement therapy	Total
		heart	liver	lungs	kidney	kidney retransplantation		
19	M				1			1
	F				1			1
20–29	M	1			1			2
	F		1		1			2
30–39	M	2			4		2	8
	F			1	1	2	2	6
40–49	M	1			2		1	4
	F	2	1	1	3		2	9
50–59	M				1			1
	F				3	1		4
60–69	M		1					1
	F				2			2
70	M	1						1
	F							0
Total		7	3	2	20	3	7	42

physical activity, and participate in sports events for patients with transplanted organs. For instance, one of the recipients participated in the World Transplant Games in 2017, 2018, and 2019; a group of patients in 2022 took part in the country's traditional most popular 10- and 42-km races, the Moscow Marathon (Fig. 3).

Donor organ recipients are at risk of developing many diseases. Therefore, there was a special focus on identifying risk factors for cardiovascular diseases, which are one of the leading causes of mortality among this category of patients [12].



Fig. 3. Group photo of participants (patients and doctors) of the Moscow Marathon (2022)

None of the participants were habitual smokers, only 2 people admitted to episodic disorders.

The patients under study adhered to the doctor's dietary recommendations and controlled their body weight. Figs. 4 and 5 show the characteristics of the patients' state according to the body mass index (BMI) in men and women.

Thus, a normal BMI was body mass index in 68.4% (n = 13) of men and 39.1% (n = 9) of women, overweight was diagnosed in 26.3% (n = 5) of men and 20.1% (n = 6) of women, 5.3% (n = 1) of men and 17.4% (n = 4) of women had malnutrition, and hypotrophy degree 1 was found in 17.4% (n = 4) of women.

Our study revealed certain regularities: assessment of the quality of life on the SF-36 questionnaire showed that all the participants had high scores on the scales of general health, vitality, and mental health. High scores in the scales of physical functioning (85.5%), role-physical functioning (78.9%) and role-emotional functioning (84.5%), which is associated with regular exercise and sports (Fig. 6).

All participants indicated that organ recipients need sports activities, which is important. 100% of surveyed

patients answered positively to the following questions in the questionnaire: "Do you think you need to engage in sports and physical exercise?", "Is it necessary to develop sports community among organ recipients?", "Do you need sports games for organ recipients in Russia?", "Would you like to participate in the World Transplant Games?".

CONCLUSION

The study showed that there were high indicators of physical and mental condition of recipients participating in the First Russian Transplant Games. In the course of the study, each participant underwent a professional examination by a sports medicine physician, and recommendations on physical activity were given to the recipients – participants in the competitions.

Thus, physical training and sports activities can improve the quality of life in the psychological and physical areas, and reduce cardiovascular disease risk factors in solid organ recipients.

Based on the survey results, it was decided to hold the Second Russian Transplant Games, which will take place in Moscow on July 27–30, 2023.

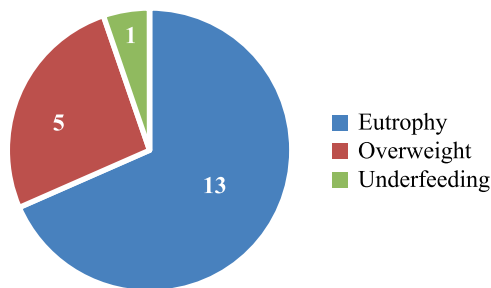


Fig. 4. Characteristics of nutritional status by BMI in men (n = 19)

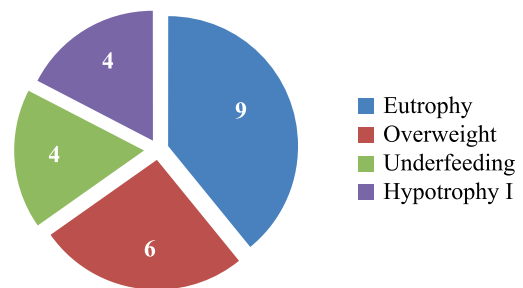


Fig. 5. Characteristics of nutritional status by BMI in women (n = 23)

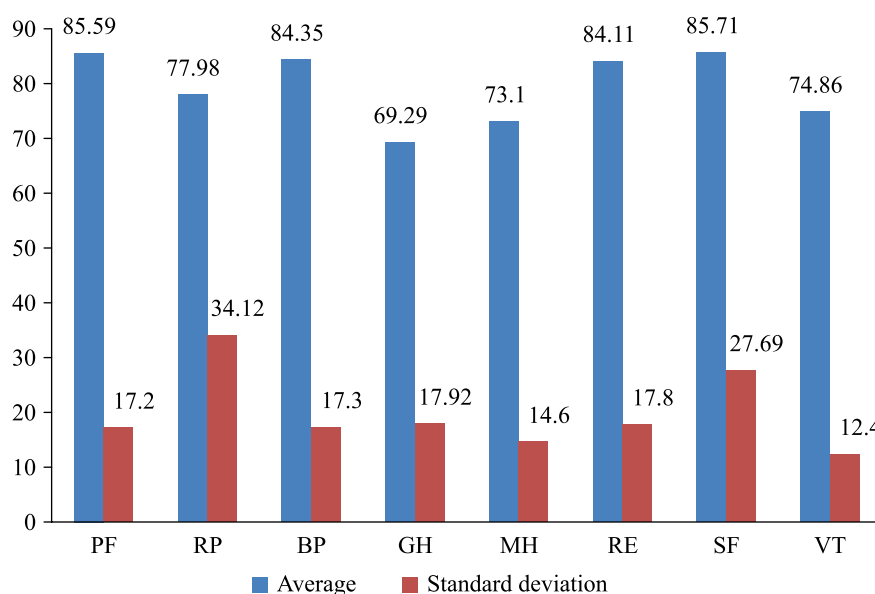


Fig. 6. Indicators of the quality of life of participants in sports games according to the SF-36 questionnaire

The authors declare no conflict of interest.

REFERENCES

1. Burra P, De Bona M, Germani G, Canova D, Masier A, Tomat S, Senzolo M. The Concept of Quality of Life in Organ Transplantation. *Transplant Proc.* 2007; 39 (7): 2285–2287. doi: 10.1016/j.transproceed.2007.06.013.
2. Wright Pinson C, Feurer Irene D, Payne Jerita L, Wise Paul E, Shannon S, Theodore S. Health-Related Quality of Life After Different Types of Solid Organ Transplantation. *Ann Surg.* 2000 Oct; 232 (4): 597–607. PMID: 10998658. PMCID: PMC1421192.
3. Kohl HW, Craig CL, Lambert EV, Inoue S, Alkandari JR, Leetongin G, Kahlmeier S. Lancet Physical Activity Series Working Group: The pandemic of physical inactivity: global action for public health. *Lancet.* 2012; 380: 294–305. PMID: 22818941. doi: 10.1016/S0140-6736(12)60898-8.
4. Zelle DM. The role of diet and physical activity in post-transplant weight gain after renal transplantation. *Clin Transplant.* 2013; 27: E484–E490. PMID: 23758229. doi: 10.1111/ctr.12149.
5. Masala D, Mannocci A, Unim B, Del Cimmuto A, Turchetta F, Gatto G et al. Quality of life and physical activity in liver transplantation patients: results of a case-control study in Italy. *Transplant Proc.* 2012; 44: 1346–1350. PMID: 22664013. doi: 10.1016/j.transproceed.2012.01.123.
6. Mazzoni D, Cicognani E, Mosconi G, Totti V, Roi GS, Trerotola M, Nanni Costa A. Sport Activity and Health-Related Quality of Life After Kidney Transplantation. *Transplant Proc.* 2014. PMID: 25242758. doi: 10.1016/j.transproceed.2014.07.049.
7. Patcai JT, Disotto-Monastero PM, Gomez M, Adcock LE. Inpatient rehabilitation outcomes in solid organ transplantation: Results of a unique partnership between the rehabilitation hospital and the multi-organ transplant unit in an acute hospital. *Open Journal of Therapy and Rehabilitation.* 2013; 1 (2): 52–61. doi: 10.4236/ojtr.2013.12009.
8. Slapak M. The effect of The Word Transplant Games on transplant rates in five continents. *Ann Transplant.* 2004; 9 (1): 46–50. PMID: 15478890.
9. The history of the games. World Transplant Games Federation. URL: <https://wtgf.org/history/> (updated: 19.03.2017).
10. https://www.transpl.ru/about/press-center/lyudi_radi_lyudej_pod_takim_nazvaniem_sostoyalas_obwestvennaya_akciya_i_tovariweskij_futbolnyj_match_na_stadi-one_luzhniki_v_podd/?sphrase_id=7710.
11. https://www.transpl.ru/about/press-center/pervye-vse-rossiyskie-transplantatsionnye-igry/?sphrase_id=7712.
12. <https://therapy.irkutsk.ru/doc/sf36a.pdf>.
13. Zelle DM, Corpeleijn E, Stolk RP, de Greef MHG, Gans ROB, van der Heide JJH et al. Low Physical Activity and Risk of Cardiovascular and All-Cause Mortality in Renal Transplant Recipients. *Clin J Am Soc Nephrol.* 2011 Apr; 6 (4): 898–905. doi: 10.2215/CJN.03340410.
14. Lowers S. Physical Therapy Considerations for Outpatient Treatment, Pre- and Post-Transplant. *Rehabilitation for Solid Organ Transplant.* 2013. Available at: <http://cardiopt.org/csm2013/Rehab-after-solid-organ-transplant.pdf>.

The article was submitted to the journal on 22.02.2023