



Analysis of the physical aspects of quality of life of kidney recipients*

Análise dos aspectos físicos da qualidade de vida de receptores de rim

Análisis de los aspectos físicos de la calidad de vida de receptores de riñón

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ABSTRACT

Objective: To identify the main factors of the physical domain modified after kidney transplantation and analyze the influence of those aspects in the perception of Overall quality of life (QOL). **Method:** Longitudinal study, conducted with 63 chronic kidney patients, evaluated before and after kidney transplant, using the quality of life scale proposed by the World Health Organization. **Results:** we observed significant improvement in the physical aspects of QOL after kidney transplantation. Significant correlations were observed between physical aspects and the Overall QOL. **Conclusion:** The kidney transplant generated improvement in all physical aspects of QOL. The factors that showed stronger correlation with the Overall QOL before the transplant were the capacity to work and pain. After the transplant, the perception of need for treatment was the factor that showed stronger correlation with the Overall QOL.

DESCRIPTORS

Kidney Transplantation; Quality of Life; Activities of Daily Living; Pain

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INTRODUCTION

The evaluation of quality of life (QOL) in patients with chronic non-communicable diseases enables the identification of aspects that influence the perception of these individuals about their own existence and about modifications imposed by disease and by treatment⁽¹⁻²⁾. In the context of Chronic Kidney Disease (CKD), successful kidney transplantation is considered a therapeutic modality that increases the chances of return to routine of life before the onset of the disease⁽³⁾.

The measurement of QOL is an important parameter to evaluate the real benefit of available therapies to patients with CKD, considering that the transplant is not a cure for these patients, who remain classified as chronic kidney disease patients. It is noteworthy that the renal graft survival time is associated with the monitoring of patient by specialized professionals and treatment adherence^(1,4).

QOL is one of the terms with the highest multifactorial expressions, which justifies their various definitions. In this study, we chose to adopt the definition of quality of life (QOL) proposed by the World Health Organization (WHO), defined as "an individual's perception about his/her position in life, within the context of cultures and values in which is inserted and in relation to his/her goals, expectations, standards and concerns"⁽⁵⁾.

In General, the measurement instruments for QOL are evaluated from the following domains: physical, psychological, social and environment⁽³⁾. The physical domain of QOL includes the perception of the individual regarding physical pain, fatigue, sleep, daily activities, treatment dependence and work capacity⁽⁵⁾. Studies with patients in dialysis treatment reveal changes in QOL, particularly in physical and social domains⁽³⁻⁴⁾.

Changes in lifestyle imposed by kidney disease and dependence on dialysis treatment can trigger changes in behavior, such as decreased self-esteem, libido and other neuro-psychiatric changes, which often go unnoticed. There are still other factors that can promote changes in behavior, generally related to physical symptoms associated with uremia, like anorexia, fatigue and sleep disorders, common in patients with chronic kidney disease⁽⁶⁻⁷⁾.

Considering the relevance of the studies conducted with chronic kidney patients before and after transplant, as well as the impact of changes in the physical domain of QOL of patients, conducting this study is justified. In this context, the objective is to identify the main factors of the physical domain modified after kidney transplantation and analyze the influence of those aspects on perception of overall QOL.

METHOD

This is an analytical and longitudinal study, conducted in a transplant center in the state of Rio Grande do Norte, Brazil. The convenience sample was composed of 63 individuals with CKD. Patients of both genders, aged over 18 years, registered on the waiting list for kidney transplantation were included. An ineffective transplant or graft failure were defined as exclusion criteria.

Data collection was conducted from May 2010 to May 2013 in two phases, using the instrument of the World Health Organization, World Health Organization Quality of Life (WHOQOL-Bref), composed of 26 questions, of these two questions assess the overall perception of QOL and general health, and the others are divided into four domains: physical, psychological, social relationships and environment. The answers were filled on a Likert scale, ranging 01 to 05, being 01 the negative extreme (0%) and 05 the positive extreme (100%)⁽⁵⁾.

The first stage of the research consisted of interviews with CKD patients on dialysis registered on the waiting list for a deceased kidney donor in outpatient treatment pre-transplantation. The second stage was performed with the same patients, seven months after the successful completion of a kidney transplant, respecting the time needed to adapt to new patient lifestyle and return to daily activities.

In the first stage, 89 CKD patients receiving outpatient treatment were interviewed before transplant. However, of these, only 63 were able to successfully accomplish the transplant and constituted the sample of this research.

In this study, we used a form with sociodemographic and health data, the question of overall quality of life WHOQOL-Bref was: *How would you rate your quality of life?* And questions of the physical domain of the WHOQOL-Bref were: *To what extent do you feel that physical pain prevents you from doing what you need to do? How much do you need any medical treatment to function in your daily life? Do you have enough energy for everyday life? How well are you able to get around? How satisfied are you with your sleep? How satisfied are you with your ability to perform your daily living activities? How satisfied are you with your capacity to work?* For the homogeneity of the data, there was an inversion of values to aspects of pain and need for treatment of the physical domain, since these questions were negatively orientated. The scores for each domain range from 0 to 20 and higher scores indicate better quality of life in that area.

The research followed precepts of Ethical of Resolution 466/12 and was developed after the approval of the Research Ethics Committee of the University Hospital Onofre Lopes at UFRN, protocol CEP/HUOL: 415/10 and CAAE No. 0008.0.294.000-10. The data were entered in Microsoft Excel spreadsheet and imported into SPSS version 20.0. Data analysis was performed using descriptive statistics, Wilcoxon test for comparison of means and Spearman correlations. The parameters used to interpret the correlation coefficients obtained were: coefficient of 0.10 to 0.39 were considered weak, 0.40 to 0.69 moderate and from 0.70 to 1 coefficients were considered strong⁽⁸⁾. The P value established as significant was <0.05.

RESULTS

Analysis of sociodemographic data showed a preponderance of people between 18 and 45 years (68.2%) with mean age of 39.9 years and standard deviation (SD) of 12.2 years, males (61.9%), married (58.7%) and with children (51.0%). As for education years, it was found that 49.2% of participants had completed elementary school and most

did not develop any work activity (90.4%) during the research period. Hemodialysis was the predominant kidney replacement therapy (96.8%) and the average waiting time for transplantation performance was 1.9 years (SD 1.9), according to Table 1.

Table 1 – Distribution of sociodemographic characteristics of CKD patients - Natal, RN, Brazil, 2013.

Variables	n	(%)
Age group	< 30	24 (38.1)
	31 to 45	19 (30.1)
	46 to 60	18 (28.6)
	> 60	2 (3.2)
Gender	Male	39 (61.9)
	Female	24 (38.1)
Marital Status	Single	19 (30.2)
	Married	37 (58.7)
	Separated	5 (7.9)
	Widow	2 (3.2)
Children	Yes	32 (51.0)
	No	31 (49.0)
Education	Illiterate	6 (9.6)
	Elementary School	31 (49.2)
	High school	21 (33.3)
	Higher education	5 (7.9)
Working activities	No	57 (90.4)
	Yes	6 (9.6)
Kidney Replacement Therapy	Hemodialysis	61 (96.8)
	Peritoneal Dialysis	2 (3.2)
Time in waiting list (years)	< 2	44 (69.8)
	2 a 4	13 (20.7)
	5 a 7	4 (6.4)
	8 a 10	2 (3.2)
Total	63	(100)

The physical domain of the WHOQOL-Bref has seven facets: pain and discomfort, energy and fatigue, able to get around, sleep and rest, activities of daily living, dependence on medications or treatments and capacity for work⁽⁴⁾. In our sample, the mean scores of the physical domain ranged from 9.94 (SD 1.78) before kidney transplantation to 17.41 (SD 1.78) after kidney transplantation.

By analyzing the variation of the scores of questions that compose the physical domain of quality of life before and after kidney transplantation, significant improvements in all aspects analyzed were noticed: reduced impact of pain and perception of need for treatment, improved energy, sleep satisfaction, the ability to walk, the ability to perform daily activities and the capacity for work (Table 2).

The evaluation of the correlation between the scores of the physical domain and the overall QOL perception measured by WHOQOL-Bref, before and after kidney transplantation are shown in Table 3.

The analysis of correlations before kidney transplantation showed positive and weak correlation between overall QOL, energy, sleep and ability for activities of daily life. We identified positive and moderate correlation between overall QOL and the capacity for work. Negative and moderate correlation was observed between overall QOL and the impact of pain on activities. Negative and weak correlation was

found between overall QOL and the perception of need for treatment. The perception of able to get around was not correlated with overall QOL before transplantation (Table 3).

Weak and positive correlations were observed between overall QOL and the questions about energy, able to get around, and capacity for work after kidney transplantation. Negative and moderate correlation was observed between overall QOL and the need for medical treatment after kidney transplantation (Table 3). Questions about the impact of pain, sleep satisfaction and ability to perform activities of daily showed no correlation with overall QOL after transplantation.

Table 3 – Comparison of mean scores of the questions of the physical domain before and after kidney transplantation - Natal, RN, Brazil, 2013.

Physical Domain	Quality of life		
	Before transplant	After transplant	P-value*
	mean (SD)	mean (SD)	
Pain impact	3.48 (0.82)	1.52 (0.59)	<0.001
Treatment necessity	3.97 (0.44)	2.46 (0.80)	<0.001
Energy	2.54 (0.74)	4.32 (0.64)	<0.001
Able to get around	2.87 (1.08)	4.43 (0.69)	<0.001
Sleep	2.51 (0.93)	4.63 (0.49)	<0.001
Perform activities	2.49 (0.76)	4.57 (0.59)	<0.001
Capacity for work	2.43 (0.86)	4.49 (0.64)	<0.001

*Wilcoxon test.

Table 3 – Correlations between questions of the physical domain and overall quality of life before and after kidney transplantation - Natal, RN, Brazil, 2013.

Physical Domain	Overall Quality of Life			
	Before transplant		After transplant	
Pain Impact	- 0.401**	(p= 0.001)	- 0.145	(p= 0.257)
Treatment necessity	- 0.265*	(p= 0.036)	- 0.425**	(p= 0.001)
Energy	0.296*	(p= 0.018)	0.334**	(p= 0.008)
Able to get around	0.162	(p= 0.205)	0.335**	(p= 0.007)
Sleep	0.336**	(p= 0.007)	0.209	(p= 0.100)
Perform activities	0.315*	(p= 0.012)	0.230	(p= 0.070)
Capacity for Work	0.510**	(p< 0.001)	0.293*	(p= 0.020)

*p<0,05. ** p <0,01. Spearman correlation.

DISCUSSION

The comparison of the mean score of physical domain of QOL before and after kidney transplantation showed a significant increase in quality of life in this domain, indicating that transplantation increased the scores of the physical domain of QOL according to the WHOQOL-Bref scale of the participants. This finding can be explained by an improvement in all aspects that encompass the physical do-

main. The reduction of symptoms such as pain and fatigue, and less dependence of treatment facilitate the resumption of daily activities after transplantation. The improvement of sleep patterns, the ease to get around and the improvement in the capacity for work and ability to perform daily activities also contribute to the better perception of overall QOL observed after kidney transplantation.

Studies with patients in dialysis reported that the physical domain negatively influences the QOL and that the results after successful kidney transplantation are perceived positively, confirming the findings of the present study^(1,3,9-10).

A study investigating the effects of physical exercise on quality of life of patients after kidney transplantation indicated that exercise training was associated with improved quality of life and patients that exercised regularly had higher scores for quality of life compared to sedentary patients after kidney transplantation. It was also observed that the active patients had QOL scores similar to the normal controls for various aspects of quality of life, suggesting the importance of exercising for the quality of life after kidney transplantation⁽¹¹⁾.

When comparing the correlations between physical features and overall QOL before kidney transplantation, we note that the strongest correlation was observed between perceived capacity for work and overall QOL, indicating that patients who felt greater capacity for work had higher overall QOL scores before transplantation.

Negative and moderate correlation was observed between the impact of pain on activities and overall QOL before transplantation, indicating that patients who felt greater impact of pain had worse overall QOL, which was expected. It is worth saying that no significant correlation was identified between pain and overall QOL after transplantation, suggesting that the pain was minimized after transplantation.

A prospective study of hemodialysis patients assessed at baseline and after six months of treatment using the Medical Outcomes Study-Item Short-Form Health Survey (SF-36) identified an association between physical domain and health-related QOL aspects. The results showed that pain and fatigue were considered independent predictors that negatively influenced QOL in the studied group⁽¹²⁾.

Correspondingly to the research conducted with patients undergoing hemodialysis in order to identify the functional capacity by the Fatigue Severity Scale (FSS), it was revealed that pain and loss in vitality were listed as items that mostly affected the QOL in that sample⁽¹³⁾.

Another study revealed that pain is a common symptom in chronic kidney failure patients, especially those on hemodialysis. According to research conducted in Canada, which evaluated 205 hemodialysis patients, the prevalence of pain was 50%, with diverse causes, among which neuropathy and peripheral vascular disease (50.5%) stood out related to higher intensity pain among those investigated⁽¹⁴⁾.

Negative and weak correlation was observed between the need for treatment and overall QOL before transplantation, indicating that patients with a greater need for treatment had worse overall QOL. However, after trans-

plantation, this variable presented negative, moderate and significant correlation with overall QOL, indicating that patients who felt less need of medical treatment had higher overall QOL scores, characterizing this as the factor that most influenced the overall QOL at this stage.

A study conducted in China with 150 kidney transplants alert to the fact that after the transplantation, care and ongoing clinical assessment are needed to reduce the risk of graft rejection and infection due to the use of immunosuppressive drugs⁽¹⁵⁾. Despite the need for clinical monitoring after transplantation, patients no longer require hemodialysis, which makes them feel freer and less need for medical treatment.

Weak positive correlations were found between perceived overall QOL and the variables energy, sleep and ability to perform activities of daily life indicating that prior to transplant patients who felt more energy for daily activities, higher satisfaction with sleep and greater ability to perform everyday activities had better overall quality of life. The capacity for work, before transplantation, showed a positive, significant and moderate correlation, demonstrating that the greater the capacity for work, the higher the overall QOL.

Research conducted in the south of Brazil evaluated 40 hemodialysis patients and demonstrated that lack of energy associated with insomnia during the night and dependence of medication and treatments, had a negative impact on QOL and capacity for work of those patients⁽¹⁶⁾. Another study⁽¹⁷⁾ conducted with 150 kidney transplant recipients noted that fatigue interferes with the capacity for self-care of those patients. These findings corroborate the results of our study, demonstrating that the aspects evaluated by physical domain of the WHOQOL-Bref correlate with the overall perception of QOL before and after transplantation.

The analysis of correlations after transplantation showed that the variables energy for the activities of daily life, able to get around and capacity for work showed weak positive correlations with overall QOL. Although these correlations were weak, they indicate that, after transplantation, these factors influenced the overall QOL. Satisfaction with sleep and the ability to perform activities of daily life showed no correlation with overall QOL after transplantation.

Opposite results were found in research conducted in the south of Brazil with 60 kidney recipients followed for the first year. The follow up of these patients showed that the perception of QOL after kidney transplantation was influenced by the quality of sleep in the study group⁽¹⁸⁾.

Chinese study that evaluated the quality of life of patients during an average period of 14 years after kidney transplantation concluded that long-term QOL of these patients is less than the QOL of the general population and that factors such as age, gender, level of creatinine and working situation significantly influence QOL in this group of patients⁽¹⁹⁾.

CONCLUSION

The quality of life of CKD patients was significantly influenced by physical aspects before and after kidney transplantation. We observed a significant improvement in all

physical aspects of QOL compared before and after kidney transplantation, showing more positive perceptions of QOL after transplantation.

The negative and moderate correlation between the impact of pain on activities and overall QOL before transplantation indicated that patients who felt greater pain had a worse impact on overall QOL. However, after transplan-

tation, a significant correlation between pain and overall QOL was not identified.

Facets of the physical domain that showed the strongest correlation with overall QOL before transplantation were capacity for work and pain. After the transplant, the perception of need for treatment was the factor with the strongest correlation with overall QOL.

RESUMO

Objetivo: Identificar os principais fatores do domínio físico modificados após transplante renal e analisar a influência desses aspectos na percepção de qualidade de vida (QV) geral. **Método:** Estudo longitudinal, desenvolvido com 63 pacientes renais crônicos, avaliados antes e após transplante renal, utilizando a escala de qualidade de vida proposta pela Organização Mundial de Saúde. **Resultados:** Observou-se melhora significativa nos aspectos físicos da QV depois do transplante renal. Correlações significativas foram observadas entre aspectos físicos e a QV geral. **Conclusão:** O transplante renal promoveu melhora em todos os aspectos físicos da QV. Os fatores que apresentaram correlação mais forte com a QV geral antes do transplante foram capacidade para o trabalho e dor. Depois da efetivação do transplante, a percepção sobre necessidade de tratamento foi o fator que apresentou correlação mais forte com a QV geral.

DESCRITORES

Transplante de Rim; Qualidade de vida; Atividades Cotidianas; Dor

RESUMEN

Objetivo: Identificar los principales factores de dominio físico modificados luego de trasplante renal y analizar la influencia de dichos aspectos en la percepción de la calidad de vida (CV) general. **Método:** Estudio longitudinal, desarrollado con 63 pacientes renales crónicos, evaluados antes y después de trasplante renal, utilizando la escala de calidad de vida propuesta por la Organización Mundial de la Salud. **Resultados:** Se observó una mejora significativa en los aspectos físicos de la CV después del trasplante renal. Correlaciones significativas fueron observadas entre los aspectos físicos y la CV general. **Conclusión:** El trasplante renal proporcionó mejora en todos los aspectos físicos de la CV. Los factores que presentaron correlación más fuerte con la CV general antes del trasplante fueron la capacidad laboral y el dolor. Luego de la realización del trasplante, la percepción acerca de la necesidad de tratamiento fue el factor que presentó correlación más fuerte con la CV general.

DESCRIPTORES

Trasplante de Riñón; Calidad de Vida; Actividades Cotidianas; Dolor

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