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CASE REPORT

Impact of Oral Health on Quality of Life in Kidney Transplant Recipients: A Case Series

Kevin Luiz Lopes-Delphino[1], Verônica Caroline Brito Reia[1], Mônica Martins Lopes Sampaio[1], Rebeca Estefania Medina Vargas[1], Paulo Sérgio da Silva Santos[1,*], Silas Antonio Juvencio de Freitas Filho[1,2]

1.Universidade de São Paulo – Faculdade de Odontologia de Bauru – Departamento de Cirurgia, Estomatologia, Patologia e Radiologia – Bauru (SP), Brazil.

2.Centro Universitário das Faculdades Associadas de Ensino – Curso de Odontologia – São João da Boa Vista (SP), Brazil.

*Corresponding author: paulosss@fob.usp.br

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ABSTRACT

Kidney transplantation (KT) is the most effective treatment option for patients with end-stage renal disease. Still, it increases the risk of infections that can compromise general and oral health, affecting quality of life (QoL). This study assessed the impact of oral health on the QoL of KT patients undergoing dental treatment. This case series study was carried out at a clinical research center specializing in the care of individuals with systemic impairments, through the analysis of 88 medical records of patients undergoing KT who received dental treatment between 2015 and 2024. The final sample included 9 medical records. The Oral Health Impact Profile (OHIP-14) questionnaire was assessed for QoL. The data was organized in spreadsheets for narrative synthesis. All the patients had periodontal conditions, and almost half the sample had tongue coating and dry mouth sensation. In two of the three patients who answered the OHIP-14 before and after dental treatment, there was a significant improvement in the impact of oral health on QoL. The results suggest that dental treatment improves the self-perception of QoL in patients undergoing KT.

Descriptors: Kidney Diseases; Quality of Life; Oral Health.

Impacto da Saúde Bucal na Qualidade de Vida em Receptores de Transplante Renal: Série de Casos

RESUMO

O transplante de rim (TR) é a opção de tratamento mais eficaz para pacientes com doença renal em estágio final, mas aumenta o risco de infecções que podem comprometer a saúde geral e bucal, afetando a qualidade de vida (QV). Este estudo avaliou o impacto da saúde bucal na QV de pacientes com TR submetidos a tratamento odontológico. Este estudo de série de casos foi realizado em um centro de pesquisa clínica especializado no atendimento de indivíduos com deficiências sistêmicas, por meio da análise de 88 prontuários médicos de pacientes submetidos a TR que receberam tratamento odontológico entre 2015 e 2024. A amostra final incluiu 9 registros médicos. A QV foi avaliada usando o questionário *Oral Health Impact Profile* (OHIP-14). Os dados foram organizados em planilhas eletrônicas para síntese narrativa. Todos os pacientes apresentavam condições periodontais e quase metade da amostra apresentava saburra lingual e sensação de boca seca. Em dois dos três pacientes que responderam ao OHIP-14 antes e depois do tratamento odontológico, houve uma melhora significativa no impacto da saúde bucal na QV. Os resultados sugerem que o tratamento odontológico melhora a autopercepção da QV em pacientes submetidos ao TR.

Descritores: Doença Renal; Qualidade de Vida; Saúde Bucal.

INTRODUCTION

Kidney transplantation (KT) is the most effective treatment option for patients with end-stage kidney disease[1]. However, patients undergoing this procedure are at greater risk of infections that can affect both their general and oral health, resulting in a reduction in quality of life (QoL)[2,3]. One way to check the perception of QoL related to oral health is by applying the questionnaire Oral Health Impact Profile (OHIP-14), which assesses aspects such as functional limitation, physical pain/discomfort, psychological and behavioral impact.[4,5]

Given the need to understand how oral health affects the QoL of patients undergoing KT, this case series aims to evaluate the impact of oral health on the QoL of these individuals following dental treatments.

CLINICAL RELEVANCE

Patients undergoing KT present oral and systemic changes that can affect QoL. Dental treatment can contribute to improving the self-perceived quality of life of this patient profile. Based on the need to understand this self-perception, it becomes necessary to evaluate QoL indicator tools, such as the OHIP-14.

CASE SERIES

This study was approved by the Human Research Ethics Committee of the institution where it was carried out (CAAE: 79708724.9.0000.5417). The procedures used followed the precepts of the Declaration of Helsinki.

This is a retrospective clinical case series conducted at a clinical research center specialized in the care of systemically compromised individuals, through the analysis of 88 medical records of patients undergoing KT who received dental treatment between 2015 and 2024. According to the eligibility criteria, individuals under 18 years of age of both sexes and individuals who underwent transplantation of other vital organs and underwent KT, who did not have at least one correctly completed OHIP-14, were excluded. In the final sample, 9 medical records of patients undergoing KT were selected. Demographic data were collected, such as sex and age, history of the current disease, which included information on the year of KT, extra and intraoral physical examination, and dental treatment/follow-up performed (Table 1).

Table 1. Demographic data, history of current illness, physical examination, and dental treatment performed on individuals undergoing kidney transplantation.

Case	Sex	Age (years)	History of current illness	Year of KT	Extra- and intraoral physical examination	Dental treatment
1	F	55	CKD, hemodialysis 1 year ago	2020	- Tongue coating - Supra and subgingival calculus - Tooth mobility	- Restorative - Endodontic - Extraction - Rehabilitative
2	F	33	CKD, hemodialysis 1 year ago, thrombosis, aHUS	2007 e 2014	- Supra and subgingival calculus - Periodontitis - Tooth decay - Petechiae - Inflammation of the sublingual caruncle - Feeling of dry mouth	- SRP - Prophylaxis - Restorative
3	M	47	CKD, hemodialysis 9 months ago	2019	- Tongue coating - Supra and subgingival calculus - Periodontitis - Gingivitis - Feeling of dry mouth	- SRP - Prophylaxis - Restorative - Endodontic
4	M	58	CKD, NR thrombosis	2015	- Periodontitis - Tooth decay - Coronary fracture - Feeling of dry mouth	- SRP - Prophylaxis - Restorative - Endodontic - Extraction - Rehabilitative
5	M	44	CKD, hemodialysis 13 years ago	1995	- White and erythematous plaque on the lingual belly	- Incisional biopsy

Continue...

Table 1. Continuation.

Case	Sex	Age (years)	History of current illness	Year of KT	Extra- and intraoral physical examination	Dental treatment
6	F	46	CKD, hemodialysis 8 years ago	2019	- Tongue coating - Supra and subgingival calculus - Periapical lesion - Nibbled buccal mucosa - Irritation in the oropharynx	- SRP - Prophylaxis - Endodontic - Restorative
7	F	64	CKF, Hemodialysis 10 years ago	2013 e 2015	- Supra and subgingival calculus - Gingivitis - Actinian cheilitis - Active fistula - Feeling of dry mouth	- SRP - Prophylaxis - Restorative - Endodontic - Enucleation - Rehabilitative
8	F	55	CKF, hemodialysis 15 years ago	2015	- Tongue coating - Periodontitis - Gingivitis - Tooth mobility	- Extraction
9	M	49	PKD	2018	- Supra and subgingival calculus - Tooth decay	- SRP - Prophylaxis - Restorative

F (female); M (male); CKD (chronic kidney disease); CKF (chronic kidney failure); PKD (polycystic kidney disease); KT (kidney transplant); aHUS (atypical hemolytic uremic syndrome); SRP (scaling and root planing); NR (not reported).

To assess QoL, the Portuguese version[4] of the OHIP-14 questionnaire, which divides 7 dimensions into 14 questions, was used. Participants assigned responses using a 0 to 4 Likert scale to quantify the impact of oral health on their QoL. The value of the answers was multiplied by the corresponding weight of each question to calculate the total value of each dimension. The seven dimensions included functional limitation, physical pain, psychological discomfort, physical disability, psychological disability, social disability, and discomfort. Values were calculated for each dimension, and the impact of each was classified as low (0–1.33), medium (1.33–2.68), or high (> 2.68). The correlation between these values was assessed as weak (< 9.33), medium (9.33–18.66), or strong (> 18.66) impact. Higher values suggested a greater negative impact of oral health on patients' QoL. OHIP-14 was assessed at the beginning of dental treatment and follow-up (Table 2).

Table 2. Impact of oral health on the quality of life of transplanted individuals before and after dental treatment follow-ups.

Case	D1/FL	D2/PP	D3/PD	D4/PhyD	D5/PsyD	D6/SD	D7/D	TOTAL
P1 (inicial)*	1.02	2.00	2.00	3.04	2.00	0.62	0	10.68
P2 (inicial)*	1.51	0.68	2.90	2.00	0.80	1.38	2.59	11.86
P3 (inicial)	0	0	0.45	0	0	0.62	0	1.07
P3 (final)	0	0	0	0	0	0	0	0
P4 (inicial)*	0.98	2.64	1.90	1.52	1.60	0.38	1.18	10.20
P5 (inicial)*	0	0	0	0	0	0	0	0
P6 (inicial)*	0	0	0.90	0	0.80	0	0	1.70
P7 (inicial)	0.98	2.66	2.90	0	2	0	0	8.54
P7 (final)	0.98	1.32	0.90	0	1.20	0	0	4.40
P8 (inicial)*	0	1.32	3.45	1.52	1.20	1.86	1.77	11.12
P9 (inicial)	0	0	0	0	0	0	0	0
P9 (final)	0	0	0	0	0	0	0	0

P1 to P9 (patients); D1 to D7 (dimensions); FL (functional limitation); PP (physical pain); PD (psychological discomfort); PhyD (physical disability); PsyD (psychological disability); SD (social disability); D (discomfort); * (only initial OHIP-14 due to death or failure to continue dental treatment).

DISCUSSION

The QoL associated with the oral health of individuals undergoing renal therapies, including KT, is often reduced under the influence of a complex correlation between systemic condition parameters and the oral condition of these patients themselves[6].

In addition to the systemic condition, due to the use of immunosuppressive medications, the immune system of KT patients may be susceptible to opportunistic infections in the oral cavity.[7,8]

As adverse effects of the medication used, hyposalivation and xerostomia can be presented and reported by these patients, increasing the risk of developing cavities and characterizing conditions that act as intensifying factors for other infections.[9] Furthermore, the common reduction in salivary flow can contribute to the formation of tongue coating and probable halitosis in these individuals.[9,10] Finally, periodontal problems exacerbated by altered inflammatory response are not uncommon.[11] All patients in the sample analyzed in this study presented periodontal conditions, characterized by dental calculus, gingivitis, periodontitis, or both associated. Furthermore, almost half of the sample had tongue coating, and four of the nine patients reported a feeling of dry mouth.

Individuals undergoing KT may also present dysgeusia, resulting in a lack of stimulus to eat meals, which can strongly affect their nutritional status and, consequently, their systemic condition9. In addition to the sum of the systemic and oral scenarios, psychological factors must also be considered, which can aggravate existing problems and increase stress and emotional discomfort, directly impacting the reduction in the QoL of these patients.[12]

The OHIP-14 questionnaire is consolidated as a useful tool for evaluating individuals' self-perception of their QoL associated with oral health. The assessment carried out in this study on the impact of oral health on the QoL of patients undergoing dental treatment, using this tool, suggests that the sample analyzed reflects the profile of KT patients with oral impairment. Furthermore, it points to a significant improvement in these patients' perception of their own QoL. Only three patients from the selected sample were able to respond to the initial and final OHIP-14 questionnaire. However, in two of these patients, it was possible to observe a drop in the total sum of dimensions from 1.07 to 0.00 in one and from 8.54 to 4.40 in the other, which means that these patients reported improvement in aspects of oral health associated with their QoL. The third patient did not show improvement as he had already presented a total of zero in his first response to the questionnaire, and, despite the lack of improvement, this patient also did not show an increase in the sum, which indicates a constancy of QoL.

The other six patients in the total sample did not have the final questionnaire administered due to death or treatment withdrawal. This factor is characterized as one of the main limitations of the study, since a larger sample size would allow greater inferences about the impact of dental treatment on patients' perception of their QoL. Carrying out the observational methodology study based on secondary data, that is, from medical records, can also be attributed as another limitation, since an experimental cohort study could provide greater control and rigor in the application of the initial and final questionnaires.

However, it is considered that the results presented here corroborate data presented in the dental literature on the profile of KT patients and can guide new studies that deepen the analysis with a larger sample. This perspective for future studies is in line with the progression and development of dentistry aimed at systemically compromised patients, which can help improve not only the oral health of these patients, but also their QoL in general.

CONCLUSION

The analyzed sample corroborates the profile of KT patients in terms of oral involvement. Furthermore, the results found from responses to the OHIP-14 questionnaire suggest that dental treatment directly and positively impacts the self-perception of QoL of patients undergoing KT. However, in future studies, the number of patient records observed must be greater so that generalized inferences can be made on the topic.

CONFLICT OF INTEREST

Nothing to declare.

AUTHORS' CONTRIBUTION

Substantive scientific and intellectual contributions to the study: Lopes-Delphino KL, Reia VC, Sampaio MML, Medina Vargas RE, Santos PSS, Freitas-Filho SAJ; **Conception and design:** Lopes-Delphino KL, Santos PSS; **Data analysis and interpretation:** Lopes-Delphino KL, Reia VC, Sampaio MML, Medina Vargas RE; **Article writing:** Lopes-Delphino KL, Reia VC, Sampaio MML, Medina Vargas RE, Santos PSS, Freitas-Filho SAJ; **Critical revision: S**antos PSS, Freitas-Filho SAJ; **Final approval:** Santos PSS.

DATA AVAILABILITY STATEMENT

All data sets were generated or analyzed in the current study.

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