Quality of life of hemodialysis patients in a Brazilian Public Hospital in Belém – Pará

Authors

Cíntia Botelho Silveira[1]
Ivaneida Kzarina Olaia Ribeiro Pantoja[1]
Allan Roberto Marques Silva[2]
Rômulo Nina de Azevedo[1]
Nayara Bandeira de Sá[3]
Marck Gregório Pereira Turiel[3]
Mário Barbosa Guedes Nunes[1]

[1]Hospital de Clínicas Gaspar Vianna, Belém, Pará, Brazil
[2]Hospital Ophir Loyola, Belém, Pará, Brazil
[3]Universidade do Estado do Pará, Belém, Pará, Brazil

Submitted on: 08/18/2009
Accepted on: 12/01/2009

Corresponding author:
Cíntia Botelho Silveira
Av. Alcindo Cacela, 513
Belém – Pará – Brasil
CEP: 66060-000

We declare no conflict of interest.

Abstract

Introduction: End-stage chronic kidney disease (CKD) requiring dialysis affects the quality of life sometimes more severely than other chronic diseases, such as rheumatoid arthritis, heart failure, coronary artery disease, and chronic obstructive pulmonary disease, exerting a negative effect on the energy and vitality levels, limiting social interactions, and hindering psychic health. **Objective:** To evaluate the quality of life of patients with CKD on hemodialysis in a public Brazilian Amazonian hospital. **Methods:** Data were collected through interview based on the Brazilian version of the SF-36 questionnaire. The study was conducted on 50 patients (mean age, 48 ± 16 years; mean hemodialysis time, 3 ± 2.9 years). **Results:** The most affected domain was role limitations due to physical health, with a mean score of 36 ± 36, and 58% of the patients in the lowest quartile, while mental health and social functioning were relatively preserved, with most patients in the highest quartile. Men obtained poorer scores than women did for role limitations due to physical health and vitality. Age correlated negatively with physical functioning. Patients on hemodialysis for more than one year had better scores in the social functioning domain, with a positive correlation between dialysis time and physical functioning. **Conclusions:** The domains assessed were globally impaired in the population studied, especially regarding role limitations due to physical health, suggesting that chronic disease with prolonged treatment has a negative influence on those domains.

Keywords: chronic kidney failure, renal dialysis, quality of life.

[J Bras Nefrol 2010;32(1):37-42]

Introduction

Chronic kidney disease (CKD) requiring dialysis is one of the chronic diseases that most impact on quality of life.[1] This results from several factors, such as the need for changing diet and habits, following a strict therapeutic regimen, coping with an incurable disease, and depending on a machine, in addition to the negative effect on energy and vitality levels, sometimes reducing or limiting the social interactions and affecting psychic health.[2,3]

This aspect of CKD is worth considering, because several studies have established an association of low levels of quality of life, both physical and mental, with unsatisfactory clinical outcomes, such as lack of compliance with the hemodialytic therapy, greater hospitalization rates, and greater morbidity and mortality.[4,5,6]

In view of that and considering the control of systemic alterations secondary to CKD, regular monitoring of the quality of life perceived by patients on hemodialysis has been recommended.[7]

The Medical Outcomes Study 36-Item Short-Form Health Survey (SF-36) has been considered the most adequate instrument for that.[4] It is probably the most complete health survey currently available for assessing the quality of life of patients with CKD, because it comprises general and specific aspects relating to renal disease.[3] By using the SF-36, several studies have shown that chronic kidney failure and its treatments generate a negative effect on the quality of life.[8,9]

In 1985, an English study reported that the functional scores of patients on dialysis were worse than those of the general population.[10] In 1997, physical functioning was shown to be more markedly affected than mental functioning.[11]

Data in the national literature are consistent with those reported by international authors. A study carried out in the Brazilian State of São Paulo has shown a clear reduction in the quality of life of patients with CKD, mainly in regard to role limitations due to physical health and vitality.[12] Santos *et al.*,[13] in the Brazilian State of Ceará, have shown that such low score was associated with an increase in hospitalization of patients with CKD on hemodialysis. Barbosa *et al.*[4] have reported similar results in the Brazilian State of Sergipe, and have added that some predictors associated with lower scores of quality of life are potentially modifiable by medical or social interventions.

In view of that and considering the scarcity of data on quality of life of patients with CKD in the North region of the country, the present study aimed at assessing the quality of life of patients with chronic kidney failure on hemodialysis at a public referral nephrology service in the State of Pará.

Methods

This is a cross-sectional, analytic-descriptive study aiming at assessing the quality of life of patients registered in the ambulatory hemodialysis program of the service of renal replacement therapy of the Hospital de Clínicas Gaspar Vianna (HCGV), in July 2008.

The study included all patients aged 18 years or older, who agreed to take part in the research by providing written informed consent. The exclusion criteria were as follows: (1) failure to attend hemodialysis sessions during the research period; (2) intellectual deficit or organic alteration that hindered understanding the questionnaire and answering the questions, making its application impossible; (3) current neoplasia; or (4) previous renal transplantation.

Of the 65 patients registered in the hemodialysis program of the HCGV in July 2008, 50 were eligible for the study. The patients excluded from the study were as follows: six because they were under the age of 18 years; two because they failed to attend sessions in the period studied; five due to cognitive disorder or clinical instability; and two who refused to provide the written informed consent.

Data collection was performed through interviews based on the Brazilian version of the SF-36, applied during a hemodialysis session, being the patient clinically stable.

The data obtained were tabulated for application in the calculation of the raw scale. For each patient and for each of the eight domains, a score was obtained by using a measuring scale with values ranging from 0 (greatest impairment) to 100 (no impairment). The numerical results of the domains were distributed into quartiles (from 0 to 25, from 26 to 50, from 51 to 75, and from 76 to 100). They were expressed as mean and standard deviation (X ± SD), when appropriate.

The information collected was stored in a Microsoft Excel 2003® database for further descriptive and comparative statistical analysis of results. The Student t test was used to assess the statistically significant differences between the means of the different groups. Pearson correlation coefficient was used to verify the strength of the associations between the demographic aspects and the SF-36 domains. For all tests, the rejection index of the null hypothesis was set at 0.05 (p). The statistical analyses were performed by using the software Biostat 4.0®.

Results

The study comprised 50 patients [mean age, 48.1 ± 16.2 years; 31 (62%) males]. The mean hemodialysis time was 3.0 ± 2.9 years, with no significant difference between sexes (Table 1).

The mean scores of the domains assessed by use of the SF-36 are shown in Table 2. The domains with the lowest scores were physical health, emotional problems, and physical functioning. When considering sex, a significant difference in the mean score of physical health and vitality domains was observed, the lowest scores being found among men (Table 3).

Figure 1 illustrates the distribution of patients in quartiles for each SF-36 domain. Even irregularly, the patients are represented in all quartiles, characterizing the heterogeneity of the sample. The domain with more patients in the lowest quartile was physical health (58.0%), while social functioning, emotional problems, bodily pain, and mental health had the greatest percentages in the higher quartiles.

The value of the Pearson correlation coefficient (r) was calculated in relation to age and hemodialysis time for the eight SF-36 domains. Age correlated negatively only with physical functioning ($r = -0.4357$; $p = 0.0016$). On the other hand, hemodialysis time showed a positive correlation only with physical functioning ($r = 0.3161$; $p = 0.0253$).

Discussion

End-stage chronic kidney disease considerably reduces the physical and professional performances of patients, leading to a negative impact on their perception of their own health and affecting their vitality levels, which may limit their social interactions and cause problems related to mental health.[3]

Impairment was shown in the different domains assessed by the SF-36, the lowest values being observed in physical health, which is in accordance with the medical literature.[2,8,11,12,14] On the other hand, social functioning and mental health were less affected, similarly to the results in the study by DeOreo[11], in which the mental functioning of patients was shown to be close to normal.

When the domains were analyzed according to sex, the male population had the lowest scores in regard to physical functioning, physical health, social functioning, vitality, and mental health. However, only physical health and vitality differed significantly (p = 0.036 and p = 0.0145, respectively). In the studies by Santos[2] and by Kalantar-Zadeh[15], no statistically significant difference was observed in the population groups in any domain.

The study by Lopes *et al.*[16], carried out in the Brazilian city of Salvador, has shown that women on hemodialysis had worse quality of life in both physical health and emotional aspects. Likewise, in the United States and Canada, the highest amongst all scores was

Table 1 Age and hemodialysis time according to sex of patients at the Hospital de Clínicas Gaspar Vianna in July 2008

	Female	Male	þ (Student t test)
Age	48.2 ± 16.5	48.4 ± 16.3	NS
Hemodialysis time	3.6 ± 3.4	3.1 ± 2.5	NS

Table 2 Scores of the SF-36 domains applied to patients on hemodialysis at the Hospital de Clínicas Gaspar Vianna in July 2008

Domains	Mean ± SD	Variation
Physical functioning	58 ± 26	0 - 100
Physical health	36 ± 36	0 - 100
Bodily pain	62 ± 33	0 - 100
General health perceptions	62 ± 21	15 - 97
Vitality	60 ± 22	20 - 100
Social functioning	74 ± 25	12,5 - 100
Emotional problems	58 ± 40	0 - 100
Mental health	70 ± 24	12 - 100

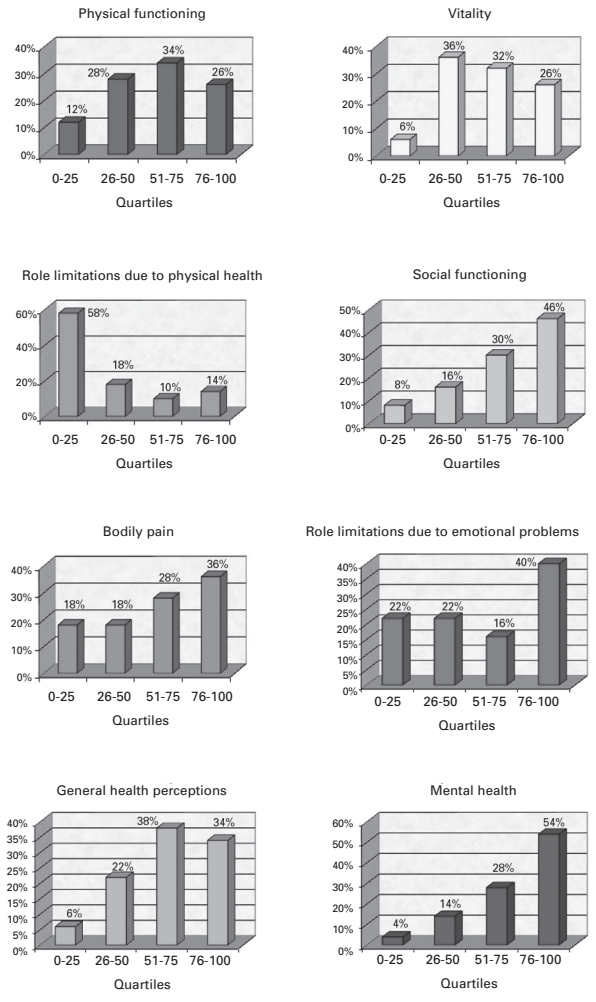
Table 3 Scores of the SF-36 domains according to the sex of patients on hemodialysis at the Hospital de Clínicas Gaspar Vianna in July 2008

Domains	Female	Male	þ (Student t test)
Physical functioning	60 ± 24.4	56.3 ± 27.4	NS
Physical health	52.6 ± 35.3	25.3 ± 32.3	0.0036
Bodily pain	58.8 ± 30.6	63.4 ± 34.7	NS
General health perceptions	64.1 ± 19.1	60.2 ± 22.5	NS
Vitality	68.9 ± 23	55.2 ± 19.7	0.0145
Social functioning	78.9 ± 24	70.3 ± 26	NS
Emotional problems	49.1 ± 40.6	63.4 ± 39.8	NS
Mental health	75.2 ± 19.3	66.8 ± 25.8	NS

observed in the male normal population[17,18], a fact that was confirmed when applied to the population on dialysis according to the results of DOPPS in the USA and also in Japan.[16] This difference may be justified by the small size of the population studied as compared to that of the above-cited studies, consisting mostly of low-income patients, whose social environment culturally associates the role of men with hard work or physical effort.

In the age distribution, physical health domain stands out once again with the lowest scores in all groups, except for the group over the age of 65 years, whose physical functioning had the lowest score. Age was shown to correlate negatively with physical functioning, and this was statistically significant (r = -0.4357; p = 0.0016). Similarly, Mingard *et al.*[14] have reported lower scores in the elderly population, especially in the physical capacity domains.

Figure 1. Percentage distribution of patients in the quartiles of SF-36 domains.



On the other hand, in the mental health, emotional problems, and social functioning domains, no difference was observed between ages, and the oldest age range had even greater scores than the younger one. Such observations are not new, they have been reported in other studies, such as the one by Rebollo *et al.* [19], in which the younger population had a lower score than those over the age of 65 years in regard to physical functioning, bodily pain, general health perception, social functioning, emotional problems, and mental health domains.

Santos[2] has still reported, in accordance to our study, a predominance of the negative correlation of age with the domains understood as the physical aspect of quality of life, with a relative preservation of the mental domains. That author emphasized that this suggests that the physical aspect is more impaired than the mental one as age advances, since the same pattern occurs in the general population in several countries.[16,17,18]

It is also worth noting that, in the present study, the group aged between 35 and 50 years had the worst score for the role limitations due to physical health domain. Being the most economically active part of the population, those patients tend to be more perceptive and demanding about their own work performance, which may have led to a stricter self-evaluation. This same group, however, had the highest score of all in role limitations due to emotional problems.

The impact of dialysis time on quality of life is scarcely known. This knowledge is strategic for decision making in therapeutic interventions and planning public health guidelines that should differ depending on dialysis time.[7]

In our study, when comparing patients with a dialysis time greater than one year with patients with a dialysis time shorter than one year, the former subgroup had a better score in the following five of the eight domains assessed: physical functioning; role limitations due to physical health; vitality; role limitations due to emotional problems; and social functioning. The latter domain evidenced a statistically significant difference (p = 0.047). That result agrees with that found by Santos and Pontes[7], who reported after a one-year follow-up an improvement in the role limitations due to emotional problems scores and summary score for mental health.

Regarding mental health, achieving a better degree of quality of life over time may be due to the psychological adaptation usually occurring in patients with chronic diseases, who use rational strategies for facing and accepting the disease and its treatment on a daily basis.[7,20]

In addition, in accordance with the study by Barbosa *et al.* [4], who have reported a lower summary score for physical health in patients with dialysis time shorter than six months, we observed a positive correlation between hemodialysis time and physical functioning ($r = 0.3161$; $p = 0.0253$). This may result from the fact that most patients who enter dialysis in our center do that on an emergency basis, in a very poor clinical condition. Usually there is no time for preparing for that treatment, such as follow-up with a specialist, previous conservative treatment, and fistula performance, and many patients are not even aware of the severity of their disease. Thus, they have greater clinical instability, requiring more hospitalizations in the initial period of the replacement therapy.

Complementing the already shown correlations, to facilitate the visualization of the results, the distribution of patients in quartiles for each domain is illustrated in Figure 1. In a general view, the patients were distributed in all quartiles of domains assessed, even if in an unequal manner, expressing the diversity of the case series. Once again, it is worth emphasizing that the role limitations due to physical health domain had the greatest number of patients in the lowest quartile, similarly to that shown by Castro *et al.*[12]

In addition, those authors have reported the largest percentages of patients in the highest quartile in the social functioning and emotional problems domains, corroborating data obtained in the present study, in which the social functioning and emotional problems domains had 46% and 40% of the patients in the highest quartile, respectively. However, it is worth emphasizing that, in our study, the domain with the highest percentage of patients in the highest quartile was mental health.

Knowing the clinical experiences and behavior changes of patients in face of therapeutic interventions favors the development and implementation of semi-quantitative measures for assessing health profile.[21] In addition, periodic quality of life assessments may allow the identification of patients with the lowest scores, who may then receive specialized support.[3]

In view of the foregoing, assessment of health-related quality of life may become a useful instrument for multidisciplinary teams for both evaluating prognosis, treatment efficiency and adequacy, and planning interventions, aiming at minimizing comorbidities and psychosocial alterations of patients with CKD.[13] Thus, further studies should be carried out and that assessment should be incorporated as routine in the follow-up of patients with CKD.

Conclusion

The health-related quality of life of the patients assessed proved to be globally reduced, mainly in regard to the physical health domain, in all age ranges, with relative preservation of the mental health, social functioning and emotional problems domains. The male population had the lowest scores regarding physical health and vitality. Age correlated negatively with physical functioning. Patients on hemodialysis programs for more than one year had the best scores in the social functioning domain, and a positive correlation was observed between dialysis time and physical functioning.

References

1. Mittal SK, Ahern L, Flaster E *et al.* Self-assessed physical and mental function of hemodialysis patients. Nephrol Dial Transplant 2001; 16:1387-94.
2. Santos PR. Relação do sexo e da idade com nível de qualidade de vida em renais crônicos hemodialisados. Rev Assoc Med Bras 2006; 2:356-9.
3. Duarte SP, Miyasaki MCOS, Ciconelli RM *et al.* Tradução e adaptação cultural do instrumento de avaliação de qualidade de vida para pacientes renais crônicos (KDQOL-SFTM). Rev Assoc Med Bras 2003; 49:375-81.
4. Barbosa LMM, Andrade Júnior MP, Bastos KA. Preditores de qualidade de vida em pacientes com doença renal crônica em hemodiálise. J Bras Nefrol 2007; 29:222-9.
5. Almeida AM. Revisão: a importância da saúde mental na qualidade de vida e sobrevida do portador de insuficiência renal crônica. J Bras Nefrol 2003; 24:209-14.
6. Merkus MP, Jager KJ, Dekker FW *et al.* Predictors of poor outcome in dialysis patients: The Netherlands Cooperative Study on the Adequacy of Dialysis. Am J Kidney Dis 2000; 35:66-79.
7. Santos PR, Pontes LRSK. Mudança do nível de qualidade de vida em portadores de insuficiência renal crônica terminal durante seguimento de 12 meses. Rev Assoc Med Bras 2007; 53:329-34.
8. Valderrábano F, Jofre R, López-Gómez JM. Quality of life in end-stage renal disease patients. Am J Kidney Dis 2001; 38:443-64.
9. Neto JFR, Ferraz MB, Cendoroglo M *et al.* Quality of life at the initiation of dialysis treatment: a comparison between the SF-36 and KDQ questionnaires. Quality Life Res 2000; 9:101-7.
10. Evans RW, Manninen DL, Garrison LP *et al.* The quality of life of patients with end-stage renal disease. N Engl J Med 1985; 312:553-9.
11. DeOreo PB. Hemodialysis patients assessed functional health status predicts continued survival, hospitalization and dialysis-attendance compliance. Am J Kidney Dis 1997; 30:204-12.
12. Castro M, Caiuby AVS, Draibe AS, Canziani MEF. Qualidade de vida de pacientes com insuficiência renal crônica em hemodiálise avaliada através do instrumento genérico SF-36. Rev Assoc Med Bras 2003; 49:245-9.

13. Santos PR. Associação de qualidade de vida com hospitalização e óbito em pacientes portadores de doença renal crônica em hemodiálise. J Bras Nefrol 2005; 27:184-90.
14. Mingard G, Cornalba L, Cortinovis E *et al*. Health-related quality of life in dialysis patients: a report from an Italian study using the SF-36 health survey. Nephrol Dial Transplant 1999; 14:1503-10.
15. Kalantar-Zadeh K, Kopple JD, Block G, Humphreys MH. Association among SF-36 quality of life measures and nutrition, hospitalization, and mortality in hemodialysis. J Am Soc Nephrol 2001; 12:2797-806.
16. Lopes AA, Bragg-Gresham JL, Goodkin DA *et al*. Factors associated with health-related quality of life among hemodialysis patients in the DOPPS. Qual Life Res 2007; 16:545-57.
17. Ware JE, Snow KK, Kosinski M, Gandek B. SF-36 manual and interpretation guide. Boston: The Health Institute - New England Medical Center, 1993.
18. Hopman WM, Towheed T, Anastassiades T *et al*. Canadian normative data for the SF-36 health survey. Can Med Assoc J 2000; 1:163:265-71.
19. Rebollo P, Ortega F, Baltar JM *et al*. Is the loss of health-related quality of life during renal replacement therapy lower in elderly patients than in younger patients? Nephrol Dial Transplant 2001; 16:1675-80.
20. Cassileth BR, Lusk EJ, Strouse TB *et al*. Psychosocial status in chronic illness. N Engl J Med 2002; 347:281-3.
21. Ware JE, Sherbourne D. The MOS 36-item short-form health survey (SF-36): Conceptual framework and item selection. Med Care 1992; 30:473-81.