

Comparison of Depression Signs before, during and after the kidney transplantation in Babol Shahid Beheshti Hospital

Seyed javad Hosseini (MSc)

Nursing Care Research Center,
Health Research Institute, Babol
University of Medical Sciences,
Babol, I.R.Iran

Parvin Aziznejadroshan (PhD)

Non-Communicable Pediatric
Disease Research Center, Health
Research Institute, Babol University
of Medical Sciences, Babol, I.R.Iran

Department of Nursing, School of
Medicine, Babol University of
Medical Sciences, Babol, I.R Iran

Mahmoud Hajiahmadi (PhD)

Assistant Professor of Biostatistics,
Non-Communicable Pediatric
Diseases Research Center, Health
Research Institute, Babol University
of Medical Sciences

Soghra Goliroshan (MSc)

Social Determinants of Health
Research Center, Health Research
Institute, Babol University of Medical
Sciences, Babol, I.R.Iran

Department of Nursing, School of
Medicine, Babol University of
Medical Sciences, Babol, I.R Iran

Monireh sadat Mousavi (BSc)

BSc in nursing, Babol University of
Medical Sciences, Babol

Corresponding Author:

Parvin Aziznejadroshan

E.mail: aziznejadroshan@yahoo.com

Address: Babol University of
Medical Sciences ,Babol

Received: 13 march 2017

Accepted: 27 Jun 2018

Background: Depression is the most common psychological problem in patients with chronic renal failure, which has a negative effect on the outcome of treatment and life quality. The aim of this study was to compare the symptoms of depression in patients referring to the Kidney Transplant Unit of Babol Shahid Beheshti Hospital before transplantation, at discharge and three months after transplantation.

Methods: This descriptive analytical study was conducted on 51 patients receiving renal transplant from November 2014 to February 2015 in Babol Shahid Beheshti Hospital. The non-random sampling method was used. Data were collected using demographic questionnaire and Beck Depression Inventory distributed in three stages. Descriptive and inferential statistics and SPSS18 were used to analyze the data. $P=0.05$ was considered significant level.

Results: Before, at and three months after renal transplantation, 70.6%, 56.9% and 52.9% of the patients had mild to very severe depression, respectively. Mean scores of depression were 19.25 ± 11.99 , 14.78 ± 11.45 and 12.82 ± 9.96 before transplantation, at discharge and three months after transplantation, respectively. Paired t-test showed a significant difference between the mean scores of depression before transplantation and at discharge after transplantation ($P=0.006$), before and three months after kidney transplantation ($P = 0.000$). There was no significant difference between the time of discharge and three months after transplantation ($P=0.135$). In addition, no significant difference was found between the scores of depression with gender, marital status, education, occupation and income ($p = 0.391$).

Conclusion: The results indicated a lower incidence of depression in kidney transplanted patients. It is recommended that the patients awaiting transplantation and subsequently their depression status should be intermittently examined and drug or non-drug treatment should be designated for these patients based on the results.

Keywords: Kidney transplantation, Depression, Renal Insufficiency

Introduction

The end-stage renal failure (ESRD) is an incurable condition, which is associated with more than 95% degradation of kidney tissue as well as an irreversible loss of renal function (1). The number of individuals affected by ESRD is rising by approximately 6% annually (2). About 25,000 of patients with chronic renal failure have been reported in Iran (3). Although kidney transplant has some benefits, numerous complications may cause many psychological and social problems for the patient (4). Mood disorders and anxiety are considered as the most common disorders before and after the kidney transplantation (5). Despite a successful transplant without any rejection, depression would be occurred due to the other side effects of the medications (6). Depression is the most common psychological problem among these patients (7). In the recent years, the prevalence of depression has been increased significantly in chronic diseases, especially chronic renal failure (8). According to the results of Rebecca's research (2006) on patients with chronic renal failure, it is stated that 36.7% of the participants had mood disorders, of which 9.6% suffered from major depressive disorder and 27.1% had mild depression disorders (9). Study of Afshar et al (2010) showed that 70% of patients undergoing hemodialysis treatment had some degree of depression and 26.7% suffered from severe depression (8). There are some controversial results among the conducted studies on the depression rate after kidney transplantation. The results of Szeifert study (2010) stated that the prevalence of depression in patients was 33% versus 22% in transplant recipients (10). Some studies have shown that the patients with transplantation have less depression than the patients with dialysis (11, 12). Furthermore, Dobbels (2008) reported that between 22%-39% of kidney transplant recipients had depressive symptoms and between 10-22% experienced mild to severe depression (13). While Prez et al (2008) mentioned that the depression rate among renal transplant patients one year after transplantation was higher (14). Kidney transplantation in 19% of patients leads to failure, and 11% of patients should turn to be treated with dialysis that this rate is twice in case of depression among the individuals (13). In the Novak study (2010), which was conducted among 840 kidney transplant patients, the depressed patients had a higher mortality rate than non-depressed ones, 21% versus 13%, respectively (15).

Treatment in ESRD cannot be considered as an actual aim; however, it is crucial to achieve the highest level of performance and the patient well-being in order to reach the ability to perform their daily activities (16). The kidney transplantation as a selective treatment for ESRD (17). brings high stress to both patients and their families even with its benefits (18). Post-transplant psychiatric disorders have negative impacts on the outcome of the treating patients with ESRD and their quality of life, which may lead to an increased rate of mortality (10, 18, 19). The researchers have been found that ESRD patients experience a wide range of symptoms of depression, including loss of pleasure, decreased or increased appetite, weight change, sleep patterns dysregulation, aggression, fatigue, lack of concentration, feelings of guilt or helplessness, suicidal thoughts or mental involvement with death (11). These psychological problems can affect the final trend of the disease. Thus, it is vital to consider the psychological problems of patients. Since nurses are more dealing with these patients rather than other health care workers, they can prevent depression and its severity by identifying them in order to help timely treatment. Disease prognosis and patient survival would be improved with the timely diagnosis and effective treatment of depression, quality of life. Therefore, the present study compares the patients' depression symptoms before, during and after kidney transplantation in Babol Shahid Beheshti Hospital.

Methods

This descriptive-analytic study was carried out on 51 patients with chronic renal failure (regardless of age) who referred to Babol Shahid Beheshti Hospital from November 2014 to February 2014. The participants were included by convenient sampling. The data-gathering tool was a two-part questionnaire. The first part of the questionnaire consisted of six questions about the demographic characteristics such as age, sex, marital status, occupation, education level and income. The second part was the Beck Depression Inventory (BDI), which had 21 questions scored between 0-63 points. The participants had to respond to a four-degree scale from zero to three. Also, the severity of depression was divided based on the obtained score into normal (0-10), mild depression (11-16), mild to moderate depression that requires consultation with the psychiatrist (17-20), moderate depression (21-30), severe depression (31-40) and extremely severe depression (41,63).

Using the related tools, Beck et al, found that the validity coefficient varies from 0.48 to 0.86. The validity and reliability of this questionnaire have been studied in several studies in Iran, with a high validity and reliability among gender and age groups of the Iranian population ($r = 0.83$, $\alpha = 0.92$) (20, 21). In addition to the screening, this questionnaire examines the depression severity. BDI is a valid and reliable benchmark for patients with ESRD.

Inclusion criteria: the absence of other chronic diseases, absence of parent's death before the age of 11, lack of psychosocial stressors such as death of close relatives, severe financial problems and nondurable disorders apart from kidney failure during the last six months. The patients with menopause stage were excluded.

This study was performed after having ethical committee approval. In addition, an informed consent was obtained from the research participants.

The questionnaire was distributed among participants in three stages. Firstly, in pre-transplantation phase, secondly after transplantation and at the time of discharge, and the third time was three months after transplantation.

The questionnaires were completed in a self-report manner with the help of the researcher. It was found that the distribution of the scores was normal using Kolmogorov Smirnov test. The data was analyzed by SPSS ver.18 using paired t-test, t-test and chi-square. The significance level of the test was considered 0.05.

Results

Most of the patients (68.8%) were men. The mean age of the men was 32.66 ± 12.27 and the average age of the women was 32.56 ± 8.79 . Seventy-six percent of the participants were married and the rest were single. The highest level of education was diploma (37.5%). About, 35/3 %

of the participants had a Free job and their income was between 170- 383 USD.

In total, 70.6% of the patients during hospitalization and before transplantation, 56.9% after transplantation and upon discharge, and 52.9% three months after transplantation had depression symptoms with different severity rates (mild to extreme severe). About, 15.6% before transplantation, 13.8% after transplantation at the time of discharge, and 5.8% three months after transplantation had severe to extremely severe depression.

The mean score of depression symptoms in the pre-transplantation stage was 19.25 ± 11.94 , after the kidney transplantation at the time of discharge was 14.78 ± 11.45 and three months after the kidney transplantation was 12.82 ± 9.96 . The statistical test showed a significant difference between the mean of total scores obtained in the above-mentioned stages ($P < 0.0061$).

Using the repeated measurement analysis, the scores obtained in the three stages containing before the transplant, the discharge time, and three months after the transplant indicated that the mean score of depression after renal transplantation has a descending trend (Table 1).

The paired t-test showed a significant difference between the mean scores of depression before and at the discharge time ($P = 0.006$), before transplantation and after three months ($P = 0.000$), while there was no significant difference between the mean scores of depression at the discharge time and three months after kidney transplantation ($P = 0.135$) (Table 2).

In addition, the chi-square test showed that there was no statistically significant relationship between the depression scores classified in each of the three stages of measuring depression symptoms and the variables such as sex, marriage, education level and occupation ($P = 0.39$).

Table 1: Comparison of frequency, mean, and standard deviation of depression in patients at three stages before, during and three months after transplantation

Group Depression rates	Before transplantation N (%)	After transplantation at the discharge time N (%)	Three months after transplantation N (%)
Normal	15 (29.4)	22 (43.1)	24 (47.1)
Mild	7 (13.7)	11 (21.6)	11 (21.6)
Mild to Moderate	6 (11.9)	2 (3.9)	5 (9.8)
Moderate	15 (29.4)	9 (17.6)	8 (15.7)
Severe	4 (7.8)	6 (11.8)	3 (5.8)
Extreme Severe	4 (7.8)	1 (2)	- (-)
Total	51 (100)	51 (100)	51 (100)
Mean and standard deviation	19.25 ± 11.94	14.78 ± 11.45	12.82 ± 9.96
p-value of the total of three steps	P= 0.000		

Table 2: Comparison of mean and standard deviation of depression scores in three stages before, after discharge and three months after transplantation in patients referred to the kidney transplant department of Babol Shahid Beheshti Hospital

Research Steps Mean ± SD	Before & After transplantation at the discharge time	Before & Three months after transplantation	Three months after transplantation
Mean and standard deviation	4.47 ± 1.55	6.43 ± 1.70	1.96 ± 1.29
p-value	P= 0.006	P= 0.000	P= 0.135

Discussion

In this study, the depression rate among patients reduced from 70.6% before transplant to 56.9% after transplantation and to 52.9% after three months.

There was a significant difference between the mean scores of depression after transplantation at the time of discharge and three months later and those of pre-transplant stage.

This finding is consistent with the findings of Ashkani et al. In their study, the patients' depression rate was reduced from 48.9% before transplantation to 13.3% after transplantation, and a significant difference was observed between the two stages before and after transplantation (22). In the study of Mahmoudi et al (2010), 93.4% of patients who underwent hemodialysis and 61.7% of the patients with kidney transplantation experienced some degree of mild to severe depression that is in line with the present study (23). In a study supervised in Italy, the depression rate in transplant recipients four months after the kidney transplant was reduced from 45.8% to 32% and the severity of depression was changed from 16.4% to 0% (17).

In addition, the studies of Szeifer, Alavi, Novak, Akman and Mollaadi confirm the findings of this research (15, 12, 11, 10, 7). However, the results of Pascazio (2010) and Karaminia (2007) studies declared that there is no significant difference between the two groups of renal transplant recipients and hemodialysis (24, 18).

Even in the studies of Prez (2008) and Parsa Mehr (2013), the depression rate in renal transplant recipients, one year after transplantation, was reported higher (25,14) that indicates the requirement of screening and appropriate depression treatment of recipients. In addition, among the recipients, it should be paid more attention to those with a history of transplant rejection or being young at the time of transplantation, in terms of the occurrence probability of the mental problems.

In the present study, there was no significant relationship between depression rate and the variables such as age, sex, occupation, and income and education level. In contrast, the study results of Nazemian et al stated a significant relationship between depression rate and the variables such as the history of kidney transplantation, duration of dialysis, family income and occupation, but no significant relationship between depression rate and marital status, age, sex, duration of illness and education level (26). Furthermore, Akman found in his study that there was no relationship between depression rate and age or gender, but marital status could be a factor in reducing depression as a result of enabling them to support mentally and socially (11). The study results of Dobbels et al showed that factors such as white race, female sex, diabetes, obesity BMI > 35, age above 65 years are considered as the factors associated with increased relative risk of depression (13).

Conclusions:

The reduction in depression at the post-transplant stage at the time of discharge and three months later compared to the pre-transplantation stage could indicate that the physical and psychological problems that may impose on the patients during illness and dialysis would be decreased by receiving kidney transplantation. Therefore, the rapid and accurate diagnosis, and the effective treatment of psychiatric problems before and after kidney transplantation seem to be essential. It is recommended that the patients who are on the waiting list for kidney transplantation should be educated to control and prevent depression. In addition, the patients undergoing kidney transplantation surgery should be periodically evaluated for depression, and screening and diagnostic tests should be performed for a better understanding of the mental and psychological conditions of these patients. This assessment may help to provide the accurate plans in the field of education, nursing care and counseling so that the health caregivers

can take proper care in order to prevent precisely the difficulties.

Acknowledgments

We thank the Vice-Chancellor of Research and Technology of Babol University of Medical Sciences, who sponsored this research, as well as

References

1. Sayin A, Mutluay R, Sindel S. Quality of life in hemodialysis, peritoneal dialysis, and transplantation patients. *Transplant Proc.*2007; 39(10):3047-53.
2. Raiisifar A, Tayyebi A, Ebadi A, Najafi S, Hashemi S, Asiyabi M. An investigation of Quality of life in Kidney Transplant Patients. *IJCCN.* 2011;4(3): 149-152.
3. Ghods A, Savaj S. Iranian model of paid regulated living-unrelated kidney donation. *Clin J Am soc Nephrol.*2006; 1(16): 1136-45.
4. Masoudi Alavi N, SharifiKh, Aliakbarzadeh Z. Depression and anxiety in patient undertaken renal replacement therapy in Khashan during 2008. *Fayz* 2009; 4 (12):46-51. [In Persian]
5. DiMartini A, Crone C, Fireman M, Dew M A. Psychiatric aspect of organ transplantation in critical care. *Crit Care Clin.*2008; 24(4): 949-81.
6. Sugawara H, Nishimura K, Kobayashi S, Ishida H, Tanabe K, Ishigooka J. Paradoxical depression in renal transplant recipient. *Transplant Proc.* 2008; 40(10): 3448-3450.
7. Alavi NM, Aliakbarzadeh Z, Sharifi k. Depression ,anxiety, activities of daily living, and quality of life scores in patients undergoing renal replacement therapies. *Transplant Proc.*2009; 41 (9):3693-6.
8. Afshar, Ghaedi GH, Sanavi S, Davati A, Rajabpour A. Depression and related factors in patients undergoing conventional maintenance hemodialysis. *Daneshvar Medicine.*2010;17(88): 59-66. [In Persian]
9. Drayer RA, Piraino B, Reynolds CF 3rd, Houck PR, Mazumdar S, Bernardini J, et al. Characteristics of depression in hemodialysis patients: symptoms, quality of life and mortality Risk. *Gen Hosp Psychiatry.* 2006; 28(4): 306-12.
10. Szeifert L, Molnar MZ, Ambrus C, Koczy AB, Kovacs AZ, Vamos EP, et al. Symptoms of depression in kidney transplant recipients: a cross-sectional study. *Am J Kidney Dis.*2010; 55 (1):132-40.
11. Akman B, Ozdemir FN, Sezer S, Micozkadioglu H, Haberal M. Depression levels before and after renal transplantation. *Transplant Proc.*2004; 36(1):111-3.
12. Mollahadi M, Tayyebi A, Ebadi A, Daneshmandi M. A Comparative study of anxiety, depression and stress in hemodialysis and kidney transplantation patients. *IJCCN.*2010; 2(4): 9-10. [In Persian]
13. Dobbels F, Skeans M.A, Synder J.J, Tuomari A.V, Maclean JR, Kasiske BL. Depressive Disorder in Renal Transplantation: An Analysis of Medicare Claims. *Am J Kidney Dis.* 2008; 51(5):819-828.
14. Pérez-San-Gregorio M A, Martí 'n-Rodríguez A, Pérez-Bernal J. Influence of the psychological state of relatives on the quality of life of patients at 1 year after transplantation. *Transplant Proc.*2008; 40(9): 3109-11.
15. Novak M, Molnar MZ, Szeifert L, Kovacs AZ, Vamos EP, Zoller R, et al. Depressive symptoms and mortality in patients after kidney transplantation: a prospective prevalent cohort study. *Psychosom Med.*2010; 72(6): 527-34.
16. Abbaszadeh A, Javanbakhtian R, Salehee Sh, Motvaseliyan M. Comparative Assessment of Quality of Life in Hemodialysis and Kidney Transplant Patients. *JSSU.* 2010;18(5): 461-468. [In Persian]
17. Virzì A, Signorelli MS, Veroux M, Giammarresi G, Maugeri S, Nicoletti A, et al. Depression and Quality of Life in Living Related Renal Transplantation. *Transplant Proc.* 2007; 39 (6) :1791-3.
18. Karaminia R, Tavallai SA, Lorgard-Dezfuli-Nejad M, Moghani Lankarani M, Hadavand Mirzaie H, Einollahi B, et al. Anxiety and Depression :A Comparison Between Renal Transplant Recipients and Hemodialysis Patients. *Transplant Proc.* 2007;39: 1082-4.

19. Kimmel P.L, Cukor D, Cohen SD, Peterson RA. Depression in End-Stage Renal Disease Patients: A Critical Review. *Adv Chronic Kidney Dis.* 2007; 14(4):328-334.
20. Vafamand E, Kargarfard M, Salehi M, Ghasemi Gh. Effect of massage therapy on decreasing anxiety and depression in addicted women in Isfahan Central Prison. *J Res Behav Sci.* 2013; 11(2): 81-9
21. GolKarami S, Mobaraki H, Kamali M, Farhodi F. The effect of empowerment programs on geriatric depression in daily rehabilitation Farzanegan center of khorramabad city. *Journal of Modern Rehabilitation.* 2012; 6(4):66-71. [In Persian]
22. Ashkani H, Dehbozorgi Gh, Shool F. Psychiatric disorder before and after the renal transplantation. *Research in Medicine .* 2002; 26(3): 162-159. [In Persian]
23. Mahmody S . Salhnegad G . Nazaryan S . Yaghoobi M . A comparison study of depression between hemodialysis patients and renal transplant recipients. *IJNR.* 2010; 5 (18) :73-80.
24. Pascazio L, Nardone IB, Clarici A, Enzmann G, Grignetti M, Panzetta GO, et al. Anxiety, Depression and Emotional Profile in Renal Transplant Recipient and Healthy Subjects: A Comparative Study. *Transplant Proc.* 2010; 42(9):3586-90.
25. Parsaei Mehr Z . Moshtagh Eshgh Z . Hami M . Fesharaki M . Comparison of depression between kidney transplant recipients from live donors with cadavers in hospitals of Mashhad University of Medical Sciences. *Advances in Nursing & Midwifery.*2013; 23(81): 41-46. [In Persian]
26. Nazemian F, Ghafari F, Poorghaznein T. Evaluation of Depression and Anxiety in Hemodialysis Patients. *Medical Journal of Mashad University of Medical Sciences.* 2008; 51(3): 171-176.