Received: 25 Sep. 2008 **Accepted: 29 Nov. 2008**

Original Article

Comparing problems of patients with chronic renal failure undergoing hemodialysis and peritoneal dialysis referring to medical university's hospitals

Maryam Eghbali, Nahid Shahqolian**, Fatemeh Nazari**, Sima Babaee***

Abstract

BACKGROUND: Renal failure affects patients' physical, psychological and social health. Various treatments prolong the life of these patients, but they face many physical, emotional, social and economical difficulties. This study aims to investigate and compare the problems of these patients undergoing hemodialysis (HD) and peritoneal dialysis (PD).

METHODS: This is a descriptive comparative study on 72 patients in two groups of hemodialysis (36 patients) and peritoneal dialysis (36 patients) referring to Al-Zahra and Noor hospitals in Isfahan. Data were collected using five questionnaires on sleeping disorders, depression, marital satisfaction, tiredness and readjustment with society. The questionnaires were completed either by the patients themselves or by interview and data were analyzed using independent t-test and chi square test.

RESULTS: Demographic data were the same in both groups and diabetes and blood pressure were the most common causes of kidney failure in both groups. The mean scores of sleeping disorders and tiredness in hemodialysis group was higher than peritoneal dialysis group, but there was no significant difference between the mean scores of depression, social readjustment and marital satisfaction of two groups.

CONCLUSION: Dialysis is a complicated problematic treatment, causing patients lots of tension and stress. The results of this study showed that hemodialysis and peritoneal dialysis patients have sleep disorders and tiredness, but the severity of tiredness and sleep disorder is higher in hemodialysis patients. Therefore, nurses should pay more attention to these patients and provide them more support and care.

KEY WORDS: Chronic renal failure, hemodialysis, peritoneal dialysis.

IJNMR 2009; 14(1): 1-5

Special diseases are a global problem and not limited to some countries. In Iran, also, these diseases endanger the health of some people. Chronic renal failure is one of these diseases, which is a developed and nonreturnable disorder; and its last stage is named End Stage Renal Disease (ESRD). In this stage, kidney's function is not enough, body fluids and electrolytes are imbalanced and chemical condition of the body is totally dysfunctional. It finally leads to deathly uremia and patients would need dialysis or kidney transplantation to stay alive.[1,2]

The prevalence of ESRD in the world is 242 in a million and it has an increase of about 8% annually. This rate is different among various ethnics so that it is 758 per million among black race and 180 per million among white race.[3] Dialysis is used to support failed kidney whose role is filtering and extracting metabolites and minerals from the blood and excreting them from body along with extra fluids. Dialysis is done through a semi-permeable membrane, which is a peritoneum membrane in peritoneal

* MSc, Department of Fundamental Nursing, School of Nursing and Midwifery, Isfahan University of Medical Sciences, Isfahan, Iran.
** MSc, Department of Medical Surgical Nursing, School of Nursing and Midwifery, Isfahan University of Medical Sciences, Isfahan, Iran.
Correspondence to: Maryam Eghbali MSc.
E-mail: eghbali@nm.mui.ac.ir
Research Article of Isfahan University of Medical Sciences, No: 285125

dialysis (PD)[2] and a polysulphone membrane in hemodialysis (HD).[4]

From 1997 to 2001 the application of HD increased 33% and use of PD increased 4%. According to The United States Renal Data System (USRDS) more than 10% of the ESRD patients use PD.[5]

PD is less expensive than blood dialysis and patients can continue living in easier conditions and longer term with the same quality of HD patients.[2] However, dialysis patients have a lot of problems and need various psychological and physical cares. Their lives depend on dialysis and limitations and changes the disease and its treatments impose on their lives may make it difficult for them to continue treatment. In some cases, patients feel that they are in the middle of life and death and the possibility of committing suicide among these people is higher than normal people.[4] Dialysis patients suffer from various problems including dysfunction, exhaustion, employment and financial problems, diet limitations, change in family duty and role shifts, worries for their marriage and sexual issues, frequent hospitalization and fear of death. These problems can lead to their depression, disappointment, conflict and guilt[1] and these disorders, if not diagnosed in time, may develop and make the patient behave in a way that would mean an unsatisfied need. Problems may develop due to the disease or because of using an unacceptable method for satisfying a need. General needs of patients with chronic renal failure includes enjoying relatively physical health, balanced emotional and psychological conditions that means satisfaction in life, finding solace, and avoiding disappointments, isolation, crying, worrisome, depression, monasticism, guilt, fear and anger. Also, these patients need a stable social situation including job, income, health insurance and social welfare services. They also need a friendly close relation with their friends and relatives. In other words, this chronic disease is an important incident that causes physical, psychological and social tense and determination and understanding these problems help the health care team personnel to provide these patients with their needs.[4]

HD and PD patients face different problems based on different process of dialysis, its frequency, characteristics and the place they receive the treatments. Patients who are indicated to receive either kind of dialysis will be referred to the hospitals' wards to see both methods for themselves, learn about them from nurses and considering their pros and cons select the one more suitable for them based on their lifestyle, abilities and interests. Besides, compared to other nations, Iranian patients have their special problems considering the health conditions and available sources and equipments. Therefore, it is better to determine the situation and problems of these patients in Iran and compare the problems they face undergoing different dialysis (HD and PD) so that nurses would be able to provide patients with more realistic instructions about limitations and changes each of these methods may bring into patients' lives. This way, patients can choose a better long term treatment for their chronic disease and have a better quality of life. This study aims to determine and compare the problems that patients with chronic renal failure face by applying HD or PD treatments. Special objectives of this study includes determining and comparing the mean scores of sleeping disorders, depression, marital satisfaction, tiredness and social readjustment in HD and PD patients.

Methods

This is a descriptive comparative study on two groups of patients (HD and PD groups) using multi-variables. Study population included HD and PD patients in Al-Zahra and Noor hospitals in Isfahan. There were 36 HD patients and 36 PD patients who met the inclusive criteria and they were selected by simple method (just 36 PD patients met the entry criteria and all of them entered the study).

Inclusive criteria included having an active file in these hospitals, undergoing dialysis treatments for at least 6 months, aged between 19-65 years old, being married and having no physical disabilities.

Data were collected using five questionnaires on sleep disorders, depression, marital satisfac-

tion, tiredness and social readjustment, which were completed by interview. The marital satisfaction questionnaire (ENRICH) included questions on satisfaction with spouse's personality, marital relation, financial supervision, conflict solution, leisure, sexual relation, having kids, relation with relatives and friends and spouse's religious beliefs. The social readjustment questionnaire evaluated changes and incidents of life and a score of 300 or higher in a period of 6 month interpreted as high stress and scores lower than 300 were low stress. To investigate depression, Beck written test was used. PFS (Piper Fatigue Scale) used for tiredness included 6 questions and a score of 6 interpreted as no tiredness while a score of 24 was the highest amount of exhaustion. In the questionnaire for sleeping disorders a score of 11 was no disorder and the maximum score was 44 showing the highest amount of disorder. For scientific validity of questionnaires, content validity and for their reliability, test retest and Cronbach's alpha were used. The Cronbach's alpha for Beck scale was 0.9, for Enrich, sleeping disorder and tiredness was more than 0.9 and it was more than 0.8 for social readjustment, which was a researcher made questionnaire.[6-8]

In this study, researchers referred to the HD and PD wards in both hospitals and take the list of patients who met the inclusive criteria. After explaining the study, the list of patients who wanted to participate in the study was prepared. Considering the usage of several questionnaires in this study, researchers completed the questionnaires by frequent visits to participants (with sufficient break to avoid bothering the patients) and interviewing them and in cases that the patients were able to fill it on their own, they did so. All patients participated in the study willingly and could leave the study at any time. Data were collected privately.

Collected data were analyzed using descriptive and inferential statistics (independent t-test and chi square) and SPSS software. An error of 5% was considered for all tests.

Results

According to the findings, the mean age and related SD was 49 ± 11.2, 59.7% of patients were male and 40.3% were female. Also, the mean and SD of the duration of chronic renal failure (CRF) for all subjects was 57.52 ± 23.47 months. In addition, the results showed no significant difference between the two groups of HD and PD patients regarding mean age, education, sex, career, length of dialysis, and length of CRF. And in a high percentage of participants in both groups, the first and second causes of renal failure were diabetes and high blood pressure respectively.

The mean ± SD of sleeping disorders scores was 26.91 ± 6.32 for HD patients and 23.25 ± 4.51 for PD patients; independent t-test showed a significant difference between them ($p < 0.05$).

The mean and SD of depression scores for HD patients was 18.63 ± 11.19 and for PD patients was 18.27 ± 12.93 and independent t-test showed no significant difference ($p > 0.05$). Also, according to the findings, 75.1% of HD patients and 66.7% of PD patients had mild, average and severe depression which for HD patients was 30.6%, 27.8% and 16.7% and for PD patients was 16.7%, 27.8% and 22.2% respectively, but chi square showed no significant difference ($p > 0.05$).

The mean and SD of marital satisfaction for HD patients was 48.31 ± 11.39 and for PD patients was 47.16 ± 9.74 but independent t-test showed no significant difference ($p > 0.05$).

The mean and SD of tiredness scores for HD patients was 17.36 ± 2.69 and for PD patients was 15.94 ± 2.83 and independent t-test showed a significant difference ($p < 0.05$).

Also, the mean and SD of social readjustment in HD patients was 277.52 ± 207.02 and for PD patients was 294.50 ± 238.65 and independent t-test showed no significant difference between the mean scores of two groups ($p > 0.05$). Moreover, the study results showed that 36.1% of patients were severely stressful for past 6 month and Chi square showed no significant difference between two groups in this regard ($p > 0.05$).

Discussion

The findings of this study showed that mean scores of sleeping disorders in HD patients was higher than PD patients and there was a significant difference between two groups in this regard. In other words, sleeping disorders among HD patients was higher than PD patients.

Williams et al (2002) in a study on sleeping behavior of HD patients found that more than 50% of patients woke up from sleep frequently and about 55% of them woke up too early.[9] Also, Yngman and Edell (2006) in a study on sleeping disorders of PD patients found that many of them had sleeping disorders and the mean of their night sleep was 4.6 ± 2.2 hours.[10] One of the most important problems of dialysis patients is sleeping disorders such as waking up easily and frequently, not falling asleep and feeling tired after sleep. It seems that HD patients have more problems with night sleep compared to PD patients because of sleeping under the device and napping during day. While PD patients are active during their dialysis process and because of frequent PD process, they would have less sleep during day, therefore PD patients can have a better night sleep compared to HD patients.

According to the results of present study one of the problems dialysis patients face was depression and about 75% of HD patients and 66.7% of PD patients had depression. It means that depression is higher among HD patients even though there was no significant difference between the mean scores of depression of two groups and no significant relation between the severity of depression and dialysis method. Samimi et al (2004) also in a study on prevalence of depression among dialysis patients found no significant relation between the severity of depression and the type of dialysis.[11] Also, Baraz et al (2005) in a study found that HD patients suffer from many psychological problems including depression and anxiety.[3]

According to the results of the present study, the mean scores of marital satisfaction in PD patients was less than HD patients, but there was no significant difference between two groups.

In a study by Juergensen et al in 2006 the only scale of quality of life in which HD patients had a higher score compared to PD patients was sexual relations and marital satisfaction. However, this difference was not significant in their study either.[12] It seems that the existence of dialysis catheter on the patients belly cause the PD patients to have less sexual satisfaction compared to HD patients and this reduces their marital satisfaction as well. In this regard, LeMone et al (2008) believe that the existence of catheter on the patients' belly causes disorders in PD patients' fantasizing[5] and this issue should be noticed and solved, since lack of satisfaction and love between couples affects their feelings towards each other and their physical and emotional health and may cause family collapse.

Exhaustion is also another complain of the dialysis patients. Findings show that both groups of patients feel exhausted, and even if the score of tiredness is higher in HD patients, the difference is not significant.

Juergensen et al in their study (2006) mentioned tiredness and weakness as problems that HD patients complained about more and reported that PD patients felt more energetic compared to pre-treatment period of their life.[12]

Yngman and Edell (2006) also reported the prevalence of tiredness among dialysis patients to be 88%. In their study, tiredness was significantly related with personal factors such as sleeping disorders, low physical health and depression.[10]

Lack of sleep, anemia, high level of uric acid and creatinine cause chronic tiredness in HD patients, but since PD patients, due to frequent and longer dialysis have less fluctuation of uric acid and creatinine compared to HD patients, they seem to have less chronic tiredness.

Dialysis affects patients' social readjustment too, and causes them to have a high level of stress. In present study, more than one third of patients had severe stress and also the level of stress among HD patients was higher than PD patients. However, the difference was not significant. Also In Juergensen et al study, there was no significant relation between the stresses scores and type of dialysis.[12]

Finally, considering the findings of this study, we hope for better plan in health care services for dialysis patients especially HD patients to reduce their sleep disorders and tiredness and to improve their function and satisfaction in life. It is suggested to conduct this study throughout the country and on greater number of patients. Also, we hope that physicians and nurses especially those working in nephrology and dialysis receive the results of this study to improve the quality of health care for the patients.

Also, the researchers declare that have no conflict of interest in this study and they have surveyed under the research ethics.

References

1. Asgari MR, Soleimany M. Intensive nursing care in CCU, ICU and dialysis wards. 2nd ed. Tehran: Boshra Publication; 1999. p. 368. [Persian].
2. Heihat M. Peritoneal dialysis. Dastur Publication; 2005. p. 9. [Persian].
3. Baraz Sh, Mohammadi E, Borumand B. The effect of self-care education on quality of life and physical health of HD patients. Hayat Quaterly 2005; 11(1, 2): 51-62. [Persian].
4. Kallenbach JZ, Gutch Ch, Stoner M, Corea A. Review of hemodialysis for nurses and dialysis personnel. 7th ed. Mosby; 2005. p. 132-7.
5. LeMone P, Burke KM. Medical-surgical nursing: critical thinking in client care. 4th ed. New Jersey: Pearson Prentice Hall; 2008.
6. Azmun Padid. ENRICH, marital satisfaction scale. Tehran: Azmun Padid Co; 1999.
7. Kaplan HI, Sadock BJ. Kaplan and Sadock's synopsis of psychiatry: behavioral sciences, clinical psychiatry. 8th ed. Philadelphia: Lippincott Williams & Wilkins; 1998. p. 305. [Persian].
8. Lewis ShL, Heitkemper MM, Dirksen ShR. Medical-surgical nursing: assessment and management of clinical problems. 6th ed. Philadelphia: Mosby; 2003.
9. Williams SW, Tell GS, Zheng B, Shumaker S, Rocco MV, Sevick MA. Correlates of sleep behaviors among hemodialysis patients. Am J Nephrol 2002; 22(1): 18-28.
10. Yngman-Uhlin P, Edell-Gustafsson U. Self–reported subjective sleep quality and fatigue in patients with peritoneal dialysis treatment at home. International Journal of Nursing Practice 2006; 12(3): 143-52.
11. Samimi Ardestani M, Karbasi Z. Zahir al-din AR. Atabak Sh. Comparing the prevalence of depression among HD and PD patients. Quarterly of Psychological Health Principals 2004; (23-24): 127-30.
12. Juergensen E, Wuerth D, Finkelstein SH, Juergensen PH, Bekui A, Finkelstein FO. Hemodialysis and peritoneal dialysis: patients' assessment of their satisfaction with therapy and the impact of the therapy on their lives. Clin J Am Soc Nephrol 2006; 1(6): 1191-6.