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The Effect of Orem Self Care Program on Uremic Pruritus in Hemodialysis Patients

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Abstract: Pruritus is an uncompromising, unpleasant and upsetting subjective complaints that provokes the desire to scratch and causes the function of the skin as a main protective barrier, becomes ineffective. The main goal of this purpose is to determine the effect of Orem self care program on uremic pruritus of the patients of the Hemodialysis centers of the Valiasr hospitals of the Nourabad Mamasani and Kazerun in 2015. The number of the samples is 60 and theywere selected purposefully and were studied in the two group of the case and witness (each group includes 30 patients). The independent variable was the orem self care program and the dependent variable was the uremic pruritus. The studied society includes all patients with end-stage chronic renal failure that in the dialysis section of the Valiasr hospitals of the Nourabad Mamasani and Kazerun affiliated to the Shiraz University of Medical Sciences. It is recommended that health care providers and nurses should improve the self care abilities by enforcing the self care in these patients based on the nursing theories and care program. Due to the lack of study in the filed of the effect of the self care program on uremic pruritus in hemodialysis patients and the high incidence of this skin disease and its effect on the lifestyle of these patients, the study about performing the Orem self care program on uremic pruritus in hemodialysis patientsseems a necessity.

Key words: Orem self care, uremic pruritus, hemodialysis patients, hemodialysis, patients

INTRODUCTION

Pruritus is an uncompromising, unpleasant and upsetting subjective complaints that provokes the desire to scratch and causes the function of the skin as a main protective barrier, becomes ineffective (Abbasi *et al*., 2011). From the clinical view, chronic pruritusis a symptom of the Chronic skin disorder (such as Dry skin and psoriasis), systemic diseases (such as Chronic liver disease, chronic renal failure and Hyperthyroidism), Central or peripheral disorders of the nervous system (Peripheral neuropathy or brain tumors) (Ostadhadi *et al*., 2015).

The prevalence of the uremic pruritus is variable between 15- 90%. In contrast to the other skin diseases, this is a common symptom experienced by hemodialysis patients. Body areas that are affected by the pruritus are: total body 55%, torso height 27.8% and organs 16.7%. In the other study, it is found that 25.8% of the Hemodialysis Patients were complainingof the heat feeling in the affected area, 22.6% of the pain and 51.6% of the pruritus. Pruritus can cause the sleep disorder, Anxiety, depression and Social dysfunction (Lin *et al*., 2012). Uremic pruritus can be locally or transfer. The intensity of the pruritus is variable. Most of time, the patient Suffered a severe attack of the disease that disturbed its daily activity and sleep (Yaghoubi *et al*., 2002). About 15- 49% of the patient with chronal renal failure and 90% of the Dialysis patients are complaining of the pruritus (Thakur *et al*., 2015). In some patients, dialysis improves itching but in other patients dialysis causes the dialysis (Pisoni *et al*., 2006). Uremic pruritus bothers about 25-33% of the pre- dialysis patients and 60-80% of the Hemodialysis patients. Usually, the most intensity of the pruritus created during the dialysis. Getting worse the pruritus may is due to some materials such as phosphorous, PTH

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(Parathyroid hormone) and Interleukin that are released in response to c5a plasma When faced with a dialysis membrane (Szepietowski *et al*., 2002). Also, in the research of the Patel on the Hemodialysis patients. It found that environmental components out of Circulatory system such as the blood set, dialysis catheters, cello-phane adhesive, needle containing nickel and cu-prophane filters (cellulose) activate the The c3a and c5a complement systems and make itching after dialysis (Patel *et al*., 2007).

Considering to different reasons of the pruritus in the Hemodialysis patients, different treatments have been studied heretofore. But, any of treatment methods has not been presented as a definitive treatment, yet (Birgani *et al*., 2011). Performed treatments to pruritus of the Hemodialysis patients include: Increase dialysis adequacy, topical Capsaicin, Opioid antagonists such as Naltrexone, Radiation therapy, Nalfurafine, Gabapentin, Erythropoietin, evening primrose oil, Loratadine, Cromolyn sodium, Klsytramyn, activated charcoal, Ketotifen and gamma-Linolenic acid (Ghanei *et al*., 2012). The study of the Hemodialysis patients shows that regard to the negative results of the Hemodialysis patients dependency, the lack of a definitive treatment and Chronicity.

Of the disease, the self care activities and abilities are very weak among the patients. It is a necessity to increase the patient information about side effects of Hemodialysis and Ways to prevent the disease by Rigorous and continuoustraining (Poodine and Nasiri, 2014, Boggatz *et al*., 2007). Because of improving the Medical science, raising the costs, emphasizing the need to control health by the individual and society,considering to basic human needs, Each individual responsibility in providing his/her healthcare, reducing the amenities, growing the population, lack of access of all people to health facilities, the concept of the self care is important (Hemmati *et al*., 2012). An important model that relies on the person's ability and need to self care is the Orem model (Hamedanizadeh *et al*., 2010). The Orem self care model has been studied in the world, broadly. It has been used in the modern nursing (Naji *et al*., 2010). The clinical nurses should help the patient and his family adapt to the chronic renal failure and increase their self care ability and get the maximum health level (Sousa *et al*., 2014).

Research goals: Major goal: determine the effect of the Orem self care program on the Uremic pruritus of the patients of the Hemodialysis centers of the Valiasr hospital of the Nourabad Mamasani and Kazerun in 2015.

Minor goals: Comparison of the intensity of the pruritus of the Hemodialysis patients before, instantly and four weeks after performing the Orem self care program between two groups of the witness and case in the Hemodialysis centers of the Valiasr hospital of the Nourabad Mamasani and Kazerun in 2015.

Compare the distribution of Pruritus spot of the he Hemodialysis patients before, instantly and four weeks after performing theOrem self care program between two groups of the witness and case in the Hemodialysis centers of the Valiasr hospital of the Nourabad Mamasani and Kazerun in 2015. Determine the needs of the self care of the Hemodialysis patients based on the Orem pattern in the witness and case groups in the Hemodialysis center of the Valiasr hospital of the Nourabad Mamasani and Kazerun in 2015.

Research hypothesis: The Orem self care program influences the Uremic pruritus of the Hemodialysis patients.

MATERIALS AND METHODS

The number of the samples is 60. They were selected purposefully and studied in two groups of the witness and case (each group includes 30 patients). In this study, we investigated the effect of the Orem self care program on the Uremic pruritus of the Hemodialysis patients. The independent variable is the Orem self care program and the dependent variable is Uremic pruritus. The chosen society is all the patientswith end-stage chronic renal failure that in the dialysis section of the Valiasr hospitals of the Nourabad Mamasani and Kazerun affiliated to the Shiraz University of Medical Sciences. Patients were on dialysis three times a week and each time, 4 h, on average. In the present study, sampling was based on the target. Randomly, a city Nourabad Mamasani) was selected as the case group and another city (Kazerun) was selected as the witness group. Thenumber of the patients of each group was 30.

To collect data, we used the questionnaire includes. Demographic questionnaire, questionnaire for Training needs assessment based on Orem self care framework and questionnaire for the Yosipovitchpruritus assessment. Demographic questionnaire is based on the factors Determining ground statusin the Orem framework. This questionnaire includes: age, gender, marital status, education level, job status, monthly income, place of living, dialysis reason, time duration of each dialysis session and duration of the dialysis.Questionnaire for Training needs assessment based on Orem self care framework assesses the patient needs in three fields of the Universal needs, developmental needs and Health-deviation. It contains the care of Fistula, pruritus,

nutrition, control of the fluid intake, activity and relaxation, social communication and familial activity. This questionnaire includes 30 questions. The answers are: always, most of the time, sometimes, rarely, never.

Determine the validity of instruments: In the present study, to determine the validity of the training needs assessment questionnaire based on the Orem self care model and Yosipovitch Pruritus Questionnaire we used the method of the Content and formal validity. To study the simplicity, clarity and the Comprehensibility of the questionnaires, the questionnaires have been distributed among the Faculty Members of the Beheshti Medical university. After collecting the opinions, the necessary changes were applied under supervisors and this instrument was used in the present research.

Determine the reliability of the instrument: To determine the reliability of the Yosipovitch Pruritus assessment questionnaire, we used test-re test method. This questionnaire has been distributed among 20 persons which have the sample characteristics. Again, after six hours, the same questionnaire has been distributed among the same persons. For questions that have more than two answers, Wilcoxon signed-ranktest was used and for questions with two answer, the Mcnemar test was used. The meaningful difference was not observed and for most of data $p > 0.05$.

To perform the reliability of the Training Needs Assessment Questionnaire based on the Orem self care, we assessed the Cronbach's alpha coefficients. For this purpose, the questionnaire was completed by 20 sample persons that had the desired research considered characteristics. In the present study, the value of the Cronbach's alpha coefficients for all scales of the Orem self care questionnaire was obtained 85%, for self care in the Universal need field was obtained 77%, for self care in the Developmental need field was obtained 91% and for self care in the health- deviation need field was obtained 78%. Therefore, the reliability of the instrument was confirmed. The minimum value of alpha for internal consistency was considered 70% (Polit and Beck, 2006).

RESULTS AND DISCUSSION

To compare two age groups we used the t-test. The results showed that the two groups have not meaningful difference ($p = 0.411$). Before studying the age data, the normality was studied. The results showed that the two groups have not meaningful difference ($p = 0.239$). To compare the gender of the participants, we used the Chi Square test. The results showed that the two groups have not meaningful difference ($p = 1.000$). To compare the marital statusof the participants, we used the Chi Square test. The results showed that the two groups have not meaningful difference ($p = 0.501$). To compare the educational level of the participants, we used the Mann-Whitney test. The results showed that the two groups have not meaningful difference($p = 0.625$). To compare the job status, we used the Chi Square test. The results showed that the two groups have not meaningful difference ($p = 0.051$).

To compare the income level, we used the Chi Square test. The results showed that the two groups have not meaningful difference ($p = 0.136$). To compare the life status, we used the Fisher test. The results showed that the two groups have not meaningful difference ($p = 1.000$). To compare the reasons of the renal failure of the participated patients, we used the Chi Square test. The results showed that the two groups have not meaningful difference ($p = 0.510$).

To compare the number of the dialysis sessions in a week, we used the Mann-Whitney test. The results showed that the two groups have not meaningful difference ($p = 0.166$). Before studying the data related to the time period of the dialysis, the normality was investigated. The results showed that the data are abnormal. To compare the time period of the dialysis, we used the Mann-Whitney test. The results showed that the two groups have not meaningful different ($p = 0.071$).

To compare the time period of the each session of the dialysis, we used the Mann-Whitney test. The results showed that the two groups have not meaningful difference ($p = 0.317$).

Discussion of the research goals: First goal: compare the pruritus intensity of the Hemodialysis patients before, instantly and four weeks later of the Orem self care program between the witness and case groups of the Hemodialysis center of the Valiasr hospitals of the Nourabad Mamasani and Kazerun in 2015.

To select an appropriate test to compare the main quantitative variables between two groups, we should determine the normality of each variable. To test the normality of the main quantitative variables, we used the Kolmogorov-Smirnovtest. The results showed that the Nonparametric test. Is an appropriate test to calculate the data related to pruritus percent.

To investigate the effect of the intervention on the prutitus intensity of each group in the present, we compared the pruritusintensity in two groups before, instantly and 4 weeks after intervention (intergroup tests). Also in each of three satges, the prutitus intensity of each group atthat time was compared (tests between groups).

The results of comparing the pruritus intensity in the intervention group by the friedman test showed the meaningful difference between intervention stages ($p<0.0005$). The results of the Pairwise comparison between the stages by the Wilcoxon testshowed that instantly after the intervention and 4 weeks after the intervention, the pruritus intensity was less than before the intervention, meaningfully ($p<0.0005$). But, the meaningful difference between pruritus intensity instantly after intervention and 4 weeks after intervention was not observed ($p>0.05$).

In the control group, the meaningful differenceabout pruritus intensity in that time between different stages was not observed ($p = 0.247$). The results of comparing the pruritus intensity in the present by the Mann-Whitney test are: before the intervention, the pruritus intensity didn't have meaningful difference between two groups ($p = 0.08$). Instantly after intervention, the pruritus intensity in the intervention group was less than control group ($p = 0.023$). Four weeks after the intervention, the pruritus intensity in the intervention group was less than control group ($p = 0.012$).

To study the effect of the intervention on the pruritus intensity, in the worst possible case in each group, the pruritus intensity, in the worstpossible case in three stages of before, instantly after and 4 weeks after the intervention was compares and tested (intergroup tests). Also, at each stage, the pruritus intensity in the worst possible case was compared and tested between two groups (Tests between two groups).

The result of comparing the pruritus intensity (in the worst possible case) in the intervention group, by the Friedman test, showed the meaningful difference between intervention stages ($p<0.0005$). The results of pairwise comparison between stages, by the wilcoxon testshowed that the pruritus intensity in each intervention stage is less than the previous stage ($p<0.0005$). But there is not the meaningful difference between pruritus intensity instantly after intervention and pruritus intensity 4 weeks after intervention ($p>0.05$).

In the control group any meaningful difference about pruritus intensity (in the worst possible case) was not observed ($p = 0.097$). Results of comparison the pruritus intensity in the worst possible case between two groups by the Mann- Whitney test are: before the intervention, the pruritus intensity in the worst possible case was not a meaningful difference between two groups ($p = 0.085$). Instantly after the intervention, the pruritus intensity in the worst possible case in the intervention group was less than control group ($p = 0.019$). Four weeks after the intervention, the pruritus intensity in the worst possible case in the intervention group was less than control group ($p = 0.006$). To study the effect of the intervention on the pruritus intensity, in the best possible case in each group, the pruritus intensity, in the best possible case in three stages of before, instantly after and 4 weeks after the intervention was compares and tested (intergroup tests). Also at each stage, the pruritus intensity in the worst possible case was compared and tested between two groups (Tests between two groups)

The result of comparing the pruritus intensity (in the best possible case) in the intervention group by the Friedman test, showed the meaningful difference between intervention stages ($p<0.0005$). The results of pairwise comparison between stages by the Wilcoxon test showed that the pruritus intensity in each intervention stage is less than the stage of the before intervention ($p<0.0005$). But there is not the meaningful difference between pruritus intensity instantly after intervention and pruritus intensity 4 weeks after intervention ($p>0.05$). In the control group any meaningful difference about pruritus intensity (in the best possible case) was not observed ($p = 0.368$).

Results of comparison the pruritus intensity in the best possible case between two groups by the Mann-Whitney test are: before the intervention, the pruritus intensity in the best possible case was not a meaningful difference between two groups ($p = 0.125$). Instantly after the intervention, the pruritus intensity in the best possible case in the intervention group was less than control group ($p = 0.023$). Four weeks after the intervention, the pruritus intensity in the best possible case in the intervention group was less than control group ($p = 0.002$).

Second goal: Compare the distribution of the pruritus spot of the Hemodialysis patients, instantly and 4 weeks after implementing the Orem self care between two groups of witness and case in the Hemodialysis center of the Valiasr hospital of the Nourabad Mamasani and Kazerun in 2015. To study the effect of the intervention on the pruritus percentage, in in each group, the pruritus percentage, in three stages of before, instantly after and 4 weeks after the intervention was compares and tested (intergroup tests). Also, at each stage, the pruritus percentage between two groups was compared and tested between two groups (Tests between two groups)

The result of comparing the pruritus percentage in the intervention group, by the Friedman test, showed the meaningful difference between intervention stages ($p<0.0005$). The results of pairwise comparison between stages, by the Wilcoxon test showed that the pruritus percentageinstantly after the intervention ($p<0.011$) and 4 weeks after the intervention ($p<0.003$) is less than the

Table 1: The average and standard deviation of scores of participants in the area of the Universal needs, Developmental needs, and Health- deviation of Orem framework for witness and case groups, separately, in the Hemodialysis center of the Valiasr hospitals of the Nourabad Mamasani and Kazerun in 2015

	Nourabad (intervention group)	Kazerun (control group)
Universal needs, developmental needs and Health-deviation needs	Average±standarddeviation	Average±standarddeviation
Nutrition needs	3/2±6/7	1/2±4/7
Control of fluid intake	6/2±9/5	0/2±0/6
Activity and relaxation	1/3±5/13	6/2±0/14
Social and family communications	8/0±2/3	2/1±4/2
Developmental needs	3/3±4/8	0/3±9/7
Care needs related to pruritus control	4/6±2/20	6/5±8/19
Care needs related to Fistula care	1/2±5/5	4/1±4/5

stage of the before intervention. But, there is not the meaningful difference between priorities, percentage instantly after intervention and pruritus percentage 4 weeks after intervention ($p>0.05$).

In the control group any meaningful difference about pruritus percentagewas not observed ($p = 0.273$) Results of comparison the pruritus percentage between two groups by the Mann-Whitney test are: before the intervention, the pruritus percentage was not a meaningful difference between two groups ($p = 0.981$). Instantly after the intervention, the pruritus percentage in the intervention group was less than control group ($p = 0.035$). Four weeks after the intervention, the pruritus percentage in the intervention group was less than control group ($p = 0.028$).

Third goal: Determine the self care needs of the Hemodialysis patients based on the Orem framework in the witness and case groups in the Hemodialysis center of the Valiasr hospitals of the Nourabad Mamasani and Kazerun in 2015.

The average and standard deviation of scores of participants in the area of the Universal needs, Developmental needs and Health-deviation of Orem framework for control and intervention groups, separately Table 1.

CONCLUSION

Obtained findings show that most of the participants (33.3%) in the case group,are in the age range of 50-60 year and in the witness group are in the age range of 40-50 year. The age average of the samples in the case group is 44.1 year and in the witness group is 47.1 year that the difference between them is not high. Obtained findings show that among the 60 samples in two groups, men are more than women. In the case and witness groups, the 66.7 and 76.7% of the samples are married, respectively.In the present study, considering that the general age average of samples is 45.6 year and the standard deviation is 9.8 year and in this age most of persons are married, we expected that most of the samples are married. The education level of the 36.7% samples of the case group is High school education and 46.7% samples of the witness group is primary school education. The abundant distribution of the employment of participant patients shows that 40% persons of the case group and 53.3% persons of the witness group are unemployment. About 16.7% persons of the case group and 0% of the witness group are employed. The abundant distribution of the monthly income of the participants shows that the most of samples in the case and witness groups (66.7 and 96.7%, respectively) have the monthly income less than enough. Most of the participants of the case and witness groups are living with their family (100 and 96.7%, respectively). The reason of therenal failure in most of the samples in the case and witness group (40 and 46.7%, respectively) is the high blood pressure and then Diabete (20 and 26.7% , respectively). Since, the found reason in this study is a long with scientific books and papers, the education and prevention of high blood pressure can reduce the renal failure and mental and financial costs of it. Most of the samples of the case and witness groups (80 and 70% , respectively) do dialysis two times in a week. The samples of the case group 47.6±34.5 month were treated with Hemodialysi and the samples of the witness group 35.6±33.0 month were treated with Hemodialysis. The duration of each dialysis session is 3-4 h for most of the participants of the case and witness groups (100 and 96.7%, respectively). In related to the first and second goals of this study".

Compare the intensity and distribution of the pruritus spot of the Hemodialysis patients, instantly and 4 weeks after implementing the Orem self care between two groups of witness and case in the Hemodialysis center of the Valiasr hospital of the Nourabad Mamasani and Kazerun in 2015, results show that there is not a meaningful difference between case and witness groups about intensity and percentage of the pruritus, before intervention ($p>0.05$). But, after intervention, the intensity and percentage of pruritus in the case group was less than before the intervention ($p<0.0005$). In the patient of the witness group that filled the questionnaire before, 4 weeks after and 8weeks after intervention and without

training, there is not a meaningful difference about the intensity and percentage of pruritus , statistically. Pruritus is a common problem in the Hemodialysis patients and in this study, the most self care fault is related to the approaches of the pruritus control. Implementation of the self care program had the positive effect on the pruritus control in the Hemodialysis patients. Therefore, it is recommended that health care providers and nurses can improve the self care behaviors and abilities in the patients by reinforcing the self care based on the nursing theories and self care program. Regard to lack of research in the field of the effect of the self care program on the Uremic pruritus of the Hemodialysis patients and high common of this skin disease and its effect on the lifestyle of the patients, it is necessary to study about the implementation of the Orem self care program on the Uremic pruritus of the Hemoddialysis patients.

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