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Research Article

The effect of gender on the complications, pain intensity and pain management in hemodialysis patients

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ABSTRACT

Background: Chronic renal failure (CRF) is a disease which threatens life, leads to significant loss of manpower and various complications, affecting almost every age group, mostly young adults. In the present study aim was to determine the effects to the complications, pain severity and pain management of gender differences in patients having HD treatment.
Method: This study was a descriptive study. Data in research; patient information form, form questioning the way of pain management types, visual analog scale (VAS) were used.
Results: Muscle cramps and nausea that show statistically significant differences between men and women, were more commonly seen in women ($p \leq 0.05$). HD applied CRF patients, they experienced musculoskeletal pain associated with most (36.9%) were determined to experience the more women than men ($p<0.05$). Perceived pain intensity was significantly higher in women ($p<0.05$).
Conclusion: It was determined that patients had complications mostly muscle cramps, so their pain reasons are mostly related to musculoskeletal system and they had moderate pain, women had much more complications and pains related to musculoskeletal system.

Key Words: Gender, Complications, Pain, Hemodialysis

INTRODUCTION

Chronic renal failure (CRF) is a disease which threatens life, leads to significant loss of manpower and various complications, affecting almost every age group, mostly young adults.[1]

Hemodialysis (HD) treatment which is one of the most commonly used treatments in the treatment of CRF patients increase the life expectancy of individuals and reduces the mortality and also raises intense physical, psychological, social and economic problems.[2,3] Although HD is relatively safe method, it can also lead to many complications. These are side effects related to extracorporeal circulation, technical errors and abnormal reactions occurring in patients.[4]

Although HD treatment is a life saving treatment, it can lead to many diseases in patients. Today, acute complications are reduced that are related to HD with the

common use of bicarbonate and with the development of technology of dialysis but these complications are still frequent.[4,5] Acute complications of HD application are; hypotension, muscle cramps, nausea, vomiting, headache, chest and back pains, fever and chills, anticoagulation related complications, imbalance syndrome, hypersensitivity reactions, arrhythmias, cardiac tamponade, intracranial bleeding, convulsions, hemodialysis, air embolism, cardiopulmonary arrest.[4-6]

The chronic complications of HD can occur due to anemia, accumulation of acelate, aluminum toxicity, inadequate dialysis or inadequate malnutrition; anemia, bleeding diathesis, leukopenia, infection tendency, hypertension, heart failure, pericarditis, gastroenteritis and gastrointestinal (GI) bleeding, constipation, liver diseases, acid, uremic bone disease (renal osteodystrophy), uraemic pruritus and skin necrosis due to calcification in blood vessels, hyperlipidemia, endocrine abnormalities, infertility and sexual dysfunction, aluminum intoxicity of uremic peripheral neuropathy, hepatitis, HIV, fistula complications are dialysis amyloidosis and psychosocial problems.[4,6]

The pain is one of the most common complaints in clinical caused by many physical and mental problems.[7] The pain is one of the most important symptoms affecting the quality of life in HD patients. It may be due to the consequences of the disease and may be caused due to the consequences of the treatment. 75% of the patients which have end stage renal disease (ESRD) are reported to have inadequate pain treatment.[8] The pain threshold may be affected by the person's past experiences, the socio-cultural level and gender.[9] The studies related to epidemiological, psychophysical and prevalence show that the pain is much more and more variable in women.[10]

Hemodialysis nurse should assess patients in a holistic way and should help in line with their requirements. Nurses should be able to notice complications and symptoms such as pain which may occur in patients. They should be guiding in applying necessary drugs or non-drug therapies with other health professionals and should implement the necessary nursing care. In our study, we aimed to determine the effects to the complications, pain severity and pain management of gender differences in patients having HD treatment

METHODS

This study was a descriptive study. The study population consisted of 120 patients who were in a chronic dialysis program registered in the dialysis unit of the state hospital between October 2014 and November 2014. 17 patients of the 120 patients that were treated in the HD units had a poor overall situation and they were also unable to speak or understand, so they were excluded from the study. The study was conducted with 103 patients that met the sampling inclusion criteria. The criteria for inclusion of patients were as follows: patients were 18 years old or older, had no communication problems and were capable of answering all the questions; they accepted the interview and could speak Turkish.

Data collection and ethical concerns

As well as the scientific principles in the research, the ethical principles of the Declaration of Helsinki were also applied. In this line of research, informed consent, autonomy, privacy, and confidentiality protection, equity, and not harming / usefulness principles were considered. In order to conduct the study, the written permission and approval of the Ethics Committee were received. Before beginning with patients who would participate in the research, the aim of the study, plans and benefits were explained. An informed consent was obtained from the patients. Data were obtained by face to face meetings.

Data collection tools

Data in research; patient information form, form questioning the way of pain management types, visual analog scale (VAS) were used. In patient identification form, there are statements questioning personal characteristics (gender, age, height, weight, education level, marital status, profession, employment status) and disease-related characteristics (reason for CRF, smoking status, alcohol use, family whether chronic disease, blood pressure, BMI, fasting blood glucose, triglycerides, LDL, HDL, total cholesterol value, HD implementation period, hemodialysis-related complications).

Visual analog scale was used to measure the pain intensity. In VAS, the patient places the degree of pain he feel, on an 10-cm horizontal line, in the left end 0 (means no pain) and in the right end 10 (means the worst pain). VAS is used by patients easily and it can repeatedly be applied to monitor patient's response to a therapeutic intervention. The form which questions the forms of pain management methods created by scanning the literature includes dependent and independent applications preferred by patients in pain reduction or elimination which is one of the most common problems in patients having HD.

Statistical analysis

The data obtained from the study were analyzed on a computer using the SPSS 21.0 statistical program. The descriptive data are given in arithmetic mean±standard deviation (SD), numbers and percentage distributions. The correlations between the variables were assessed using one-way annova analysis. The data were evaluated at 95% confidence interval and at $p<0.05$ significance level.

RESULTS

The majority of patients in our study; male (63.1%), primary school graduates (50.5%), do not smoke (78.6%) and do not use alcohol (96.1%), in normal weight

(49.5%) and do not actively work in a day (78.6%). The most common causes of chronic renal failure are DM and HT (Table 1).

Hemodialysis patients have shown significant complications and the most common complications are muscle cramps (55.3%), headache (51.5%) and HT (44.7%). Muscle cramps and nausea that show statistically significant differences between men and women, were more commonly seen in women ($p \leq 0.05$). HD applied CRF patients, they experienced musculoskeletal pain associated with most (36.9%) were determined to experience the more women than men ($p < 0.05$). Perceived pain intensity was significantly higher in women ($p < 0.05$) (Table 2).

When the pain management types are analyzed which patients use, it was seen that they mostly prefer resting (73.8 %), sleeping (48.5 %), turning to religion (47.6 %). It was found that pain medicine usage was higher in women with the requirement of doctors or except the requirement of doctors ($p<0.05$) (Table 3).

Table 1: Socio -demographic and clinical characteristics of the patients (n: 103).

Characteristics	n	%	Characteristics	n	%
Sex			**Chronic disease in the family**		
Female	38	36.9	Yes	47	46.1
Male	65	63.1	No	55	53.9
Marital status			**Smoking**		
Married	65	63.1	Use	22	21.4
Single	29	28.2	Not use	81	78.6
Widowed	9	8.7			
			Alcohol		
Occupation			Use	4	3.9
Housewife	29	28.2	Not use	99	96.1
Employee	4	3.9	**HD duration**		
Retired	9	8.7	0-6 months	40	38.8
Officer	3	2.9	7-12 years	4	3.9
Free	26	25.2	1-3 years	36	35
Other	32	31.1	3-5 years	3	2.9
			>5 years	20	19.4
Education Level			**BKİ(kg/m^2)**		
Illiterate	24	23.3	<18.5	12	11.7
Literate	7	6.8	18.5-24.9	51	49.5
Primary Education	52	50.5	25-29.9	30	29.1
Secondary Edu.	18	17.5	30-34.9	6	5.8
High Education	2	1.9	35-39.9	3	2.9
			>40	1	1
Employment Status					
Full time	5	4.9	Age (year)	47.53±17.45	
Part time	17	16.5	Hb (g/dl)	10.8±1.49	
Not working	81	78.6	Hct (%)	32.32±5.79	
CRF Reason			LDL (mg/ dl)	95.49±29.26	
HT	21	20.4	TA diastolic (mmHg)	77.77±10.24	
DM	33	32.0	FPG (mg / dl)	118.05±69.07	
HT+DM	7	6.9	Total cholesterol (mg / dl)	156.63±36.38	
Nephrotic syndrome	18	17.4	Triglycerides (mg / dl)	168.96±83.83	
Congenital	3	2.9	Systolic TA (mmHg)	129.13±18.65	
Other	21	20.4			
HDL (mg/dl)	37.02±10.07		HbA1c (%)	6.78±1.83	

HT; hypertension, diabetes mellitus, diabetes mellitus, fasting glucose; fasting blood glucose, BMI; body mass index, LDL; low-density lipoprotein, HDL; High Density Lipoprotein, TA; blood pressure. Continuous variables were presented as mean±standard deviation, categorical variables were presented as numbers (percent).

Table 2: Distribution of the causes of complications and pain associated with HD by gender (n:103).

	Total		Women		Men			
Hemodialysis related complications *	**n**	**%**	**n**	**%**	**n**	**%**	**x2**	**p**
Hypotension	46	44.7	19	50	27	41.5	0.69	0.40
Muscle cramps	57	55.3	26	68.4	31	47.7	4.16	0.04
Nausea	34	33	17	44.7	17	26.2	3.74	0.05
Headache	53	51.5	20	52.6	33	50.8	0.60	0.74
Chest pain	21	20.4	10	26.3	11	16.9	1.30	0.25
Back pain	26	25.2	13	34.2	13	20	2.56	0.10
Itching	30	29.1	10	26.3	20	30.8	0.23	0.63
Chills	17	16.5	8	21.1	9	13.8	1.43	0.48
Disequilibrium syndrome	4	3.9	2	5.3	2	3.1	0.88	0.64
Dialysis reactions	2	1.9	0	0	2	3.1	1.69	0.44
Arrhythmia	4	3.9	2	5.3	2	3.1	0.88	0.64
Ecchymosis	3	2.9	1	2.6	2	3.1	0.61	0.73
Skin dryness	28	27.2	9	23.7	19	29.2	1.02	0.59
Sleeping disorder	43	41.7	16	42.1	27	41.5	0.00	0.95
Infection	7	6.8	1	2.6	6	9.2	2.29	0.31
Restless legs syndrome	3	2.9	2	5.3	1	1.5	1.17	0.27
Bleeding	8	7.8	1	2.6	7	10.8	2.12	0.14
Embolism	4	3.9	1	2.6	3	4.6	0.25	0.61
Ocular Complications	1	1	1	2.6	0	0	1.72	0.18
Cardiac tamponade	1	1	1	2.6	0	0	1.72	0.18
Pericardial effusion	1	1	1	2.6	0	0	1.72	0.18
Pain reasons*								
Related musculoskeletal	38	36.9	19	50	19	29.2	4.44	0.03
Associated with the dialysis procedure	15	14.6	7	18.4	8	12.3	0.72	0.39
Neuropathic pain due to peripheral neuropathy	11	10.7	5	13.2	6	9.2	0.38	0.53
Pain associated with peripheral vascular disease	6	5.8	2	5.3	4	6.2	1.75	0.41
Carpal tunnel syndrome	3	2.9	2	5.3	1	1.5	1.17	0.27
Angina	5	4.9	2	5.3	3	4.6	0.02	0.88
Other	14	13.6	6	15.8	8	12.3	0.24	0.61
Perceived pain intensity average	5.21±2.91		6.55±3.23		4.66±2.07		t:3.02	0.00

*Complication doesn't develop in every patient and multiple complications can develop in the same patient, so n has changed.

Table 3: Pain management methods by gender (n:103).

	Total		Women		Men			
	n	**%**	**n**	**%**	**n**	**%**	**x^2**	**p**
Pain management methods								
Massage	38	36.9	15	39.5	23	35.4	0.17	0.67
Stress control (speech, breathing exercises, etc.).	16	15.5	6	16.2	10	15.4	0.01	0.91
Resting	76	73.8	26	68.4	50	76.9	0.89	0.34
Cold-warm application	21	20.4	8	21.1	13	20	0.01	0.89
Involuntary pain medication use	28	27.2	16	42.1	12	18.5	7.14	0.02
Avoiding foods that start or increase pain	27	26.2	10	26.3	17	26.2	0.59	0.74
To participate in the support groups about pain	8	7.8	4	10.5	4	6.2	1.19	0.55
Using relaxation methods (dreaming etc.)	18	17.5	6	15.8	12	18.5	0.73	0.69
Avoiding physical activity which will increase pain	36	35	11	28.9	25	38.5	0.95	0.32
Turning into religion (praying etc.)	49	47.6	17	44.7	32	49.2	0.19	0.65
Using analgesics according to the claims of doctors	46	44.7	22	57.9	24	36.9	4.26	0.03
Diverting attention (watching tv, reading, etc.)	24	23.3	8	21.1	16	24.6	0.17	0.68
Doing relaxation exercises	18	17.5	4	10.5	14	21.5	2.01	0.15
Listening to music	34	33	11	28.9	23	35.4	0.44	0.50
Applying menthol, ointment and so on. to the skin	17	16.5	9	23.7	8	12.3	2.25	0.13
Providing quiet environments	45	43.7	13	34.2	32	49.2	2.19	0.13
Changing position	34	33	9	23.7	25	38.5	2.36	0.12
Sleeping	50	48.5	17	44.7	33	50.8	0.34	0.55

DISCUSSION

Today, the view about HD which should be used for not only to increase the life time but also to improve the quality of life gained importance.[11] Effective treatment and care of fasting observed in HD patients by reducing, controlling and determining the cause of the pain level, taking into account gender differences in the planning of individual care practices and implementation will help patients to provide more satisfaction of life. In our study; the most common complications in HD patients are muscle cramps, headache and hypotension.

Muscle cramps and nausea for more seen in women, they experience pain associated with most musculoskeletal, they experienced more pain than women and men, in general, women perceived pain intensity was found to be higher. In Yeşil's study,[12] 75.7% of 70 HD patients had pain complaints. The causes of pain are headache (58.5%), lower extremity pain (39.6%) and contraction due to cramping pain (52.8%). Murtagh et al[13] determined the pain prevalence as 47% between dialysis patients.[13] Pham et al found 54.6% of 130 patients with known CKD interviewed were women.[14] Any type of pain of at least a 2 week duration was reported in 72.9%. The most common source of pain was musculoskeletal.

In Davison's study, it was determined that 50% of the patients had pain problems, 50.5% of them had musculoskeletal pain and 32% of them did not use painkillers.[8] In the same study, 74.8% of the patients had negative pain management index and they applied ineffective pain management. Kafkia et al determined that 46 % of the patients had leg pain in his study.[15] In the study of Kral, 27.8% of the patients who were within the scope of research had sometimes nausea and vomiting, 45.6% had sometimes muscle cramps and 31. 1 % had sometimes dizziness.[16]

Our patients stated that they prefer mostly resting, sleeping, turning to the religion, using analgesics and quiet environment as a form of pain management. When the ratio of the methods used by sex, women; massage, stress control methods, cold-warm applications, with doctors using pain relievers or involuntary claim, attend support groups, menthol, leather, ointments etc. application and men; they mostly prefer recreation, use of relaxation methods, avoiding physical activity that will increase the pain, turning to religion, draw attention to another aspect, relaxation doing the exercises, listening to music, providing quiet environment, position change, and sleeping. In the study of Yeşil, 54.7% of the patients used drugs for pain.[12] In the study of Kafkia et al, as pain management of patients; they prefer using hot towels/cloths (female:85.2%, male:100%), massage (female:88.9%, male:84.2%) and using painkiller (female:47.4%, male:52.6%).[15]

CONCLUSION

It was determined that patients had complications mostly muscle cramps, so their pain reasons are mostly related to musculoskeletal system and they had moderate pain, women had much more complications and pains related to musculoskeletal system.

In HD patients, gender differences are taken into consideration and complications and pain can be questioned with individual and holistic approach, it can also be evaluated by these and the pain treatment and its care can be made by CFR treatment and therefore the quality of life of patients can be increased.

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