Pain And Coping Methods of Hemodialysis Patients During the Covid-19 Pandemic Process

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Abstract

This research was conducted to determine determine the pain and coping methods of hemodialysis patients during the covid-19 pandemic process. The research was conducted between April 2022 and August 2022. Data were collected from four dialysis centers in a city center. A total of 503 people receive hemodialysis treatment in the centers where the study was conducted. The sample consisted of 170 patients who volunteered to participate in the study and met the study criteria. The data of the study were collected using patient information form, and VAS Pain (Pain Level Measurement and Pain Coping Scale (PCS). Accordingly, the VAS pain score experienced by the patients during the Covid 19 pandemic process is 7.64±0.97. The mean scores of the PCQ sub-dimensions; 27.1±8.96 in the self-coping sub-dimension; 19.86±4.83 in the helplessness sub-dimension; 9.77±5.24 in the sub- dimension of conscious cognitive interventions; It was found to be 18.84±4.22 in the sub-dimension of seeking medical help. In the case of VAS and PCQ total points averages, according to the pain characteristics of individuals, the severity of the pain, the pain type, the pain type the difference between the time and the scale point averages according to the methods of dealing with pain was statistically significant (p<0.05). It has been found that the average of VAS and PCQ total points for individuals who suffer unbearable, have chest pain, define sudden and sharp pain, and experience pain all day long. In individuals who are waiting for the pain to be rested and spontaneous, VAS points averages and those who practice breathing exercises have been found to have significantly higher PCQ total score average. Most of the patients who participated in our study described the pain they experienced during the pandemic process suddenly and sharply, and the mean scores of VAS pain and PCQ were found to be significantly higher in this patient group. It has been determined that pain is experienced mostly at night and analgesics are mostly used to cope with it. Effective pain management is among basic human rights and one of the most important responsibilities of health personnel. Therefore, presence, reason, place, characteristics and severity of the pain must be evaluated in detail and pain managements must be performed by necessary interventions.

Keywords: *SARS-CoV-2, COVID-19, coronavirus, cognition, neurocognitive, convalescence, PASC*

Introduction

COVID-19, which causes SARS, is a destructive disease that arises in Wuhan, China towards the end of 2019, the disease has given rise to a global pandemic and people still sense its devastating impacts. World Health Organization declared the epidemic caused by SARS-CoV-2 as a pandemic in March 2020, since it has influenced large human populations (Chen et al., 2019; Huang, & Zhao, 2020; Zhou et al., 2020). The number of cases worldwide is estimated to be 115 million, with approximately 2.56 million deaths recorded due to the disease. The virus is transmitted through viral droplets and direct contact and the incubation period varies within 2-14 days. Common symptoms of the disease include respiratory symptoms, such as fever, cough, pain, and shortness of breath. (Valeri et al., 2020; WHO, 2020).

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In the literature, 23.7% of COVID-19 patients were found to be accompanied by at least one chronic disease, the COVID-19 virus was more common in individuals with chronic disease, and the disease symptoms caused by the virus had a more severe course, and also that 48% of patients with COVID-19 virus were present with comorbidities (Guan et al.; 2020). Patients with CKD, especially for dialyzed patients who are mostly elderly, immunosuppressed with multiple co-morbid conditions are more vulnerable to COVID-19 infection. Also, dialyzed patients have a high risk for exposure to the virus, because they must apply to the hemodialysis center twice or thrice a week and come together with many patients and dialysis staff in the facility (Fisher, Yunes, Mokrzycki, Golestaneh, Alahiri, & Coco, 2020). Applying social isolation measures to prevent and control infectious diseases, including COVID-19 in dialysis patients is difficult to prevent and control infectious diseases, including COVID-19, as they spend time in crowded waiting areas before and after their HD sessions. HD patients have a less efficient immune system, which can alter their response to COVID-19. Therefore, it is not surprising that there is an increased rate of mortality among HD patients due to the disease. Studies have shown that mortality is higher among HD patients, as compared to normal population. It is necessary to pay more attention on this patient cohort (Valeri et al., 2020).

In the literature, it was stated that hemodialysis patients who had Covid -19 experienced the most symptoms of high fever, fatigue, chest pain, cough and nausea (Alberici et al.,2020; Ma, et al., 2020; Wuang et al., 2020).

In a study conducted on 45 hemodialysis patients who had Covid 19, it was found that patients mostly complained of sore throat, headache, chest pain, back pain and joint pain (Koçak, Kayalar, Karaosmanoğlu, & Yılmaz, 2021). Out of Covid 19 virüs, pain is a frequent complaint of patients with chronic kidney disease who undergo hemodialysis. Pain in patients with CKD varies in location and intensity. Pain in these patients could manifest as myalgia, cramps, headache, musculoskeletal pain, neuropathic pain, and/or chest pain. In addition, bone pain and progressive loss of muscle mass can also affect the quality of life of these patients (Pham, Khaing, Sievers, Miller, & Pham, 2017). Studies have shown that healthcare professionals and patients often use pharmacological methods in pain management. When we look at the analgesic agents used in the clinic to pain management, non-opioidanalgesics (NSAID), opioids and adjuvant analgesics are used. Despite all these drug applications, the complexity of pharmacokinetics and its effect on kidney functions, and the lack of valid algorithms make pain management difficult. In a study, it was determined that more than half of the individuals receiving hemodialysis treatment took medication, while the others coped with pain by resting/waiting for it to pass by itself, massaging and sleeping etc (Akça, & Arslan, 2015).

In the literature, hemodialysis patients who had Covid 19 during the pandemic process experienced moderate pain in various parts of the body. It is important that evaluating the pain experience of these subjects and providing appropriate nursing interventions. There for, this study was conducted to determine the pain and coping methods of hemodialysis patients during the covid-19 pandemic process.

Method

Study Design

Descriptive and cross-sectional and relational screening model was conducted in Turkey.

Participants

The research was conducted between April 2022 and August 2022. Data were collected from four dialysis centers in a city center. A total of 503 people receive hemodialysis treatment in the centers where the study was conducted. The sample consisted of 170 patients who volunteered to participate in the study and met the study criteria. Because the power = 0.85 was determined with Gpower analysis, it was decided that the sample size was sufficient and the study was completed with 170 patients.

Individuals over the age of 18, receiving hemodialysis treatment for at least 1 year, having no psychiatric disorder requiring treatment, with person, place and time orientation, who had experienced COVID-19 infection and giving verbal and written consent to participate in the study were included in the scope of the study. Participants with chronic pain before COVID-19 infection and not having had Covid-19 since the beginning of the pandemic were excluded from the study.

Data Collection

The data of the study were collected from the patients by using face to face interview technique. The patients were informed about the study and their verbal and written consents were received.

Data Collection Tools

The data of the study were collected using patient

information form, and VAS Pain (Pain Level Measurement and Pain Coping Scale (PCS).

Patient Information Form: It was prepared by the researcher by reviewing the related literature and studies (Alberici et. Al., 2020; Chen et al., 2020; Fisher et al., 2020). The form has 5 questions about some socio-demographic characteristics of the individual (age, gender, marital status, educational status, working status etc.), 9 questions about the characteristics related to disease and treatment (hemodialysis duration, presence of the other chronic disease, condition of continuous medication, body mass index, laboratory results, etc.) and 7 questions about the pain experienced due to Covid 19 (location, severity, time, type and methods of coping with strategy for pain).

Pain Level Measurement - Visual Analog Scale (VAS): The scale developed by Priceet al., (1994) was used to evaluate the pain level perceived subjectively in many studies and found to be valid and reliable. The scale is composed of a 10-cm vertical or horizontal line starting with "no pain" and ending with "worst pain". The patient sare asked to indicate the severity of their pain by marking the appropriate point they see appropriate. The distance between the "no pain" starting point and this point is measured and recorded as "cm". The values range between 0 and 10 and the pain levels of patients are evaluated over 10 points as 0=no pain and 10=worst pain (Price, Bush, Long & Harkins, 1994).

Pain Coping Quastionaire (PCQ): Developed by Kleinke (1992) to reveal pain-specific feelings and behavioral patterns (Kleinke CL. How chronic pain patients cope with pain: Relation to treatment outcome in a multidisciplinary pain clinic. Cognitive Therapy and Research. 1992;16(6):669-685). Turkish validity and reliability of scale has been conducted by Karaca and his friends (1996). The scale of 29 points with quadruple lyert includes four sub-dimensions, "self-coping", "desperation", "conscious cognitive initiatives", "seek medical care". The scale states that the highest 36 points from the self-coping subdimension, the highest 24 points from the subdimensions of desperation and conscious cognitive initiatives, and the highest 27 points from the search subdimension for medical care, and the lowest zero points from all sub-dimensions. It has been reported that there is no breakpoint for scale sub-size scores. The increase in the score received at the scale lower dimensions indicates that the way to deal with the pain in that dimension is high. The Cronbach's Alpha coefficient of the scale was found in 0.75 (Karaca, Demir, Aşkın, & Şimşek, 1996).

Data Analysis

The research data were analyzed using the Statistical Package for the Social Sciences Statistics software (version 22). While evaluating the data, the frequency distributions, and descriptive statistics of the variables were calculated. When parametric test assumptions are provided, the Significance Test of the Difference Between Two Means and Analysis of Variance in the comparison of independent group differences; When parametric test assumptions were not provided, Mann-Whitney U test and Kruskal Wallis Variance Analysis were used to compare independent group differences. Spearman Correlation analysis was used to examine the relationships between continuous variables. Results were evaluated at 95% confidence interval and significance level of $p < 0$>

Ethical Considerations

First of all, the study was approved by the Ministry of Health Scientific Research Platform (2022-03-10T22_16_22) and the Ethics Committee of the University (2022/18). The purpose of the study was explained first and information about the study process was given to the participants by stating that their identities would be kept confidential and their written consents (Informed Consent Form) were obtained.

Results

It was determined that 56.4 percentage of individuals included in the study were women, 33.5percentage were in age group of 45-54 years, average age was 52.9 ± 10.8, 32.2percentage were secondary school graduates, 81.2percentage were married, 64.8percentage had nuclear family, 81.8percentage were unemployed, 68.8percentage stated their income status were middle. (Table 1).

As stated in Table 1, the individuals were CRF patients 39.4% of them have this disease for 6-10 years and were undergoing hemodialysis treatment for 71.21 ± 46.93. It was found that 78.8% of the individuals' vascular insertion site had arteriovenous fistula, BMI of 61.1% was normal, and transplantation was not planned for 57.6%.

Table 2 shows the findings regarding the mean scores of the patients' VAS and PCQ sub-dimensions. Accordingly, the VAS pain score experienced by the patients during the Covid 19 pandemic process is 7.64±0.97. The mean scores of the PCQ sub-dimensions; 27.1±8.96 in the self-coping sub-dimension; 19.86±4.83 in the helplessness sub-dimension; 9.77±5.24 in the sub-dimension of conscious cognitive interventions; It was

found to be 18.84±4.22 in the sub-dimension of   seeking medical help

Table 1. The Patient's Sosociographic and Disease-Related Characteristics

Descriptive Characteristics	n (%)	Descriptive Characteristics	n (%)
Gender		*Income Status*	
Female	96 (56.4)	Very high	3 (1.8)
Male	74 (43.6)	High	20 (11.8)
Age Groups		Middle	117 (68.8)
25-34 ages	8 (4.7)	Low	25 (14.8)
35-44 ages	15 (8.8)	Very low	3 (1.8)
45-54 ages	57 (33.5)	*Disease Characteristics*	
55-64 ages	40 (23.5)	*Duration of disease*	
65 ages and above	50 (29.5)	6 – 12 months	7 (4.1)
Educational level		1-5 years	49 (28.8)
Literate	49 (28.7)	6-10 years	67 (39.4)
Primary School	20 (11.6)	10 years and more	47 (27.7)
Secondary School	55 (32.2)	The average duration of hemodialysis (month) ($\bar{x}$ ±ss)	71.21 ± 46.93
High School	35 (20.5)	**Vascular access**	
Marital Status		Arteriovenous Fistula	134 (78.8)
Single	32 (18.8)	Port Catheter	36 (21.2)
Married	138 (81.2)	**Body mass index**	
Family Type		Weak	10 (5.8)
Nuclear family	110 (64.8)	Normal	104 (61.1)
Extended family	52 (30.5)	Overweight	42 (24.8)
Broken families	8 (4.7)	Obese	11 (6.5)
Working Status		Morbidly obese	3 (1.8)
Working	31 (18.2)	**Transplant story**	
Unemployed	139 (81.8)	Failed transplant	4 (2.3)
		Transplant waiting	68 (40.0)
		Unplanned transplantation	98 (57.6)

Table 2: Scores of the Patients on VAS Pain and PCQ and its Sub-Dimensions

		x±ss	Min-Max Points
	VAS	*7.64±0.97*	*1-10*
	PCQ	*18.74±7.16*	*0-111*
PCQ Sub-Dimensions	*Self-Coping*	*27.12±8.96*	*0-36*
	Helplessness	*19.86±4.83*	*0-24*
	Conscious Cognitive Interventions	*9.77±5.24*	*0-24*
	Seeking Medical Help	*18.84±4.22*	*0-27*

In the case of VAS and PCQ total points averages, according to the pain characteristics of individuals, the severity of the pain, the pain type, the pain types the difference between the time and the scale point averages according to the methods of dealing with pain was statistically significant (p<0>

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Table 3: Comparison of the Patients' VAS and PCQ Total Mean Scores during the Covid 19 Pandemic in Terms of Related to Pain Characteristics (n=170)

Pain Characteristics	n (%)	VAS x±SS	Test and *p* Value	Pain CopingQuastionaire(PCQ) x±SS	Test and *p* Value
Pain Intensity					
Light	12 (7.5)	3.54±0.41[a]		11.7±4.5[a]	
Disturbing	15 (8.8)	4.40±0.42[b]		19.9±3.3[a]	
Severe	87 (51.1)	4.45±0.42[b]	F=3.07 p<0.05	51.1±3.6[b]	KW= 16.29, p<0.001
Very severe	45 (26.3)	7.09±0.29[c]		57.7±4.1[b]	
Unbearable	11 (6.3)	8.01±0.39[c]		67.1±3.2[b]	
Pain Area					
Throat pain	39 (22.8)	5.29±0.41a		37.6± 6.3a	
Headache	8 (4.6)	5.47±0.32a		38.1± 5.2a	
Joint pain	35 (20.5)	7.53±0.19b	F=22.31 p<0.05	40.8± 7.4b	KW= 12.05, p<0.01
Chest pain	51 (30.0)	8.31. ±0.18b		52.6± 5.7b	
Back pain	37 21.7)	7.77±0.16b		56.6± 5.4b	
Pain Type					
Aching pain	31 (18.2)	4.54±0.20a		17.6± 5.4a	
Throbbing pain	22(12.9)	4.31±0.22a	F=18.43 p<0.05	19.1± 2.7a	KW= 12.14, p < 0.05
Blunt pain	52 (30.5)	5.32±0.22b		18.8± 3.6a	
Sudden sharp pain	65 (38.2)	6.54±0.20b		19.7± 2.6b	
Pain Time					
In morning times	31 (18.2)	5.62±0.40a		20.6± 3.4a	
Afternoon	45 (26.5)	6.42±0.42a	KW= 36.72 p<0.05	19.8± 2.4a	KW= 12.24, p<0.001
Night	52 (30.6)	7.28±0.43b		51.1± 2.8b	
Continually	42 (24.7)	8.15±0.29b		57.3± 4.8b	
Methods of coping with pain					
Taking medication	56 (32.9)	3.52±0.39[a]		30.2 ±7.7[a]	
Rest/wait for it to pass byitself	19 (11.2)	8.53±0.37[b]		39.4 ±6.7[a]	KW= 14.26, p<0.05
Sleep	37 (21.7)	8.52±0.35[b]		38.9 ±6.2[a]	
Massage	15 (8.7)	3.86±0.44[a]			
Using herbal products(honey, ginger, vitamincomplex etc.)	23 (13.6)	5.24±0.42[c]		57.1 ±6.8[b]	
Music therapy	14 (8.3)	6.24±0.12[c]		47.1 ±6.8[b]	KW=.8.42, p< 0.05
Breathing exercise	6 (3.6)	5.32±0.45[c]		57.1 ±6.8[b]	

* While the same letters indicate lack of difference, different letters indicate presence of difference.

A positive and moderate (p:0.022, r:0.558) statistically significant relationship was found between the patients' "VAS" mean scores and their PCQ total score mean. As the pain scores of the patients increase, the mean scores of copings with pain also increase (Table 4).

Table 4: Correlation Coefficient of VAS Scale and Pain Coping Quastionaire (PCQ) Scores of Patients

	VAS	
	r	p
PCQ	0.558	**0.022**

Discussion

Pain in patients undergoing hemodialysis (HD) is a major health problem and affects about half of the patients. Although they can arise from many causes musculoskeletal pain, uremic neuropathy (UN) and critical limb ischemia is one of the most common causes. It is stated that hemodialysis patients experience pain due to Covid 19 during the pandemic process. Hemodialysis patients with COVID-19 infection may experience various symptoms, such as fever, dyspnea, cough, headache, muscle pain, sore throat, abdominal pain, and chest pain (Jager et al., 2020) In this study, it was determined that the patients mostly experienced chest pain and headache, the VAS pain score was 7.64±0.97, and the PCQ score average was 18.74±7.16.

Effective pain management is among basic human rights and one of the most important responsibilities of health personnel. Therefore, presence, reason, place, characteristics and severity of the pain must be evaluated in detail and pain managements must be performed by necessary interventions. Most of the patients who participated in our study described the pain they experienced during the pandemic process suddenly and sharply, and the mean scores of VAS pain and PCQ were found to be significantly higher in this patient group.

It has been determined that pain is experienced mostly at night and analgesics are mostly used to cope with it. Studies have shown that individuals experience pain in different type. This shows that the virus affects many parts of the body. In addition, the pain is a subjective symptom, the individuals have different perceptions of stress, and the pain is affected by individuals' past pain experiences. Knowledge of pain beliefs of individuals would directly contribute to the selection of suitable coping methods according to the pain belief of the patient in nursing practices, hence would aid in the determination of effective pain management (Clauw, Häuser, Cohen, & Fitzcharles, 2020).

In a study conducted with individuals who receive hemodialysis treatment, more than half of them have been medicated for the pain and others have tried to cope with the pain by means of resting, waiting for it to pass by itself, sleeping and massaging, etc.

(Davinson, 2003). In a study of hemodialysis patients, individuals receiving treatment for pain, more than half took medication for pain, while others resting, waiting for it to pass by itself, sleeping and massaging they try to cope with the pain with methods etc. detected. In our study, it was determined that the participants mostly tried to control their pain pharmacologically, and the study findings are similar to the literature. Since the application of non-pharmacological methods, either alone or in combination with pharmacological methods, has an effect on reducing the severity of pain, its use has expanded especially in recent years.

The use of complementary and alternative medicine (CAM) applications increased by 39.3% of individuals with chronic diseases during the pandemic process in Turkey (19). Hemodialysis patients use CAM methods not only for pain management but also to overcome hypertension, fatigue, constipation, leg edema, cramps, anxiety, depression, sleep disorders, to cope with symptoms such as itching, to stop the progression of kidney disease and to improve their quality of life. Methods used are herbal products and food supplements, acupressure, acupuncture, homeopathy, exercise, aromatherapy, yoga and reflexology. In our study, it was determined that the patients used herbal products, massage, music therapy and respiratory exercises as a method of coping with pain, and that the VAS pain intensity was significantly lower and the PCQ score was significantly higher in these patients. It was determined that individuals with high VAS pain severity had high PCQ scores and there was a moderate positive correlation between them. It can be said that individuals with high pain severity develop better coping strategies with pain. In a study conducted; It is seen that 17-38% of the patients provide effective pain control, and 84% of the patients who experience severe pain try to cope without taking painkillers (Kafkia, Vehviläinen-Julkunen, Sapountzi-Krepia, 2014).

Almost all patients undergoing HD experience pain and holistic care is important to relieve this pain. Effective holistic treatment necessitates a specific pain diagnosis, planned treatment and care, localizing the pain and determination of the coping methods. Effective pain control in ESRD patients is required to improve quality of life. Initial step is to elicit a good history for pain and intensity assessment using VAS followed by pain specialist consultation, patient and family education, discussion about treatment options and correction of reversible causes. Conservative management should be

considered first and then analgesics are introduced according to WHO guidelines. It is important to understand the relation between analgesics and renal failure to implement the tailored approach to accommodate individual variation in terms of pain intensity, tolerance, and side effects.

Implications for nursing education, practice and research

Pain is an unpleasant sensory and emotional experience associated with actual or potential tissue damage and is very common in hemodialysis patients. Pain affects quality of life in patients negatively. In HD patients, their evaluation will strengthen their communication with their patients by using appropriate tools. The presence, severity, frequency, duration and increasing/decreasing factors and methods of dealing with pain in the pandemic process of patients by nurses should be evaluated regularly. Due to the small number of studies done in this area, the number of samples is high, and the need for randomized controlled experimental studies is thought to be high.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper

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