

Research Article

Assessment And Management of Chronic Pain In Hemodialysis Patients: A Pilot Study

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Abstract

Purpose

This study was conducted to examine the coping status of HD patients with chronic pain and the factors affecting it.

Methods

This descriptive and cross-sectional study included 89 HD patients. The study was carried out in the hemodialysis unit of a training and research hospital between April August 2022. Inclusion of the sample of the study in the study there were 83 HD patients who met the criteria and volunteered to participate in the study. Data were collected using the Individual Identification Form, the Visual Analogue Scale (VAS) and the Pain Coping Inventory (PCI).

Findings

The majority of patients (92.7) used painkillers for pain, about half (42.1%) experienced knee/leg pain, followed by back/lower back pain with 39.7%. It was reported that 48.0% of the participants used the NSAID group for pain, and 85.7% of them benefited from these painkillers. However, individuals of the state with the highest increase in pain hemodialysis sessions (%51.8), walking (%20.4) and long-term survival (%14.4) is the rest of the most pain, which reduces the activity (%439.8), sleep (%21.7), and massage (%15.6) were noted. There is no significant difference between the active pain coping strategies total score of individuals and any variable ($p > 0.05$). Only a significant relationship was found with the factors that cause pain ($p < 0.05$). While there was no significant difference between passive pain coping strategies total score and age, education-

al status, pain zone, drug group used, conditions that increase pain ($p > 0.05$); there is a significant difference between gender, marital status, employment status, income level, pain medication use ($p < 0.05$).

Conclusion

Pain is a significant problem for the majority of HD patients and is not effectively managed. To increase the quality of life of patients, the care team should regularly question pain symptoms and the pain should be treated effectively.

Keywords: Hemodialysis; Management; Nursing; Pain; Pain

Introduction

Pain is a common complaint among hemodialysis (HD) patients; however, most patients are not assessed for this aspect and are not sufficiently treated. Over 60 percent of hemodialysis patients describe moderate or severe chronic. The prevalence of pain has been associated with substantially lower health-related quality of life and greater psychosocial distress, insomnia, and depressive symptoms. Among hemodialysis patients, severe pain is also independently associated with shortened or missed hemodialysis treatments and increased health services utilization, such as emergency department visits and hospitalizations [1].

Harraqui and his friends have identified pain prevalence as 70.9% in their work with HD patients. 42.8% of the patients stated that they had mild, 23.8% moderate, 19% serious and 14.2% unbearable pain [2]. Zagajevsko et al. pain in HD patients the prevalence was found to be 63%, and 54% of patients were in more than one area of their body they have expressed that they feel pain [3]. Davison found that 18.4% of patients had pain for more than one reason, and the most common pain he had determined that his type was musculoskeletal pain [4]. Kafkia and colleagues reported that 46% of patients complained of leg pain as internal pain, 71% complained of pain in the fistula area as external pain, and they determined that pain in the fistula area was associated with cannulation [5]. In the study of Yeşil and his colleagues, HD patients it was determined that 58.5% experienced headache, 39.6% lower extremity pain and 52.8% experienced pain due to contractions in the form of cramps [6]. Pain in hemodialysis patients develops in the form of somatic, visceral, neuropathic or complex regional pain syndrome. The etiology of pain is due to different causes, it is usually multifactorial [7]. Due to the complex nature of the pain, it is quite difficult to diagnose and assess. In addition, HD patients experience difficulties in pain management due to changes in the absorption, distribution, metabolism and elimination of analgesics [8]. This topic reviews the epidemiology, assessment of pain, and management of chronic pain among hemodialysis patients [9].

Research on the presence, etiology and management of pain is limited in hemodialysis patients, as priority is given to the treatment of the existing disease in general. When pain cannot be relieved, it can negatively affect the quality of life of patients and reduce the motivation necessary to continue HD and other treatment programs

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[10]. Effective pain management in HD patients is very important in improving the quality of life and preventing psychiatric problems. Effective pain management is one of the basic human rights and is one of the most important responsibilities of the nurse. For this reason, the presence, cause, location, nature, severity and effect of pain on quality of life in patients should be evaluated in detail and pain should be relieved with appropriate pharmacological and non-pharmacological interventions [5].

It is important that the nurse, who assumes important responsibilities in the care of hemodialysis patients, knows the patients' pain coping behaviors and influencing factors. It is believed that coping with pain is a complex process. In this context, this study was conducted to examine the coping status of HD patients with chronic pain and the factors affecting it [9].

Methods

Search strategy

This descriptive and cross-sectional study included 89 HD patients. The study was carried out in the hemodialysis unit of a training and research hospital between April August 2022. Inclusion of the sample of the study in the study there were 83 HD patients who met the criteria and volunteered to participate in the study.

Inclusion and exclusion criteria

The criteria to be included in the research; (1) 18 years of age and over, (2) with complaints of pain for at least 3 Months, (3)receiving hemodialysis treatment for at least three months, (4) three hemodialysis sessions per week (5) who can answer questions the cognitive adequacy, (5) hearing, etc without communication problems (6) the individuals who volunteered to participate in the study were included in the study. The exclusion criteria are that (1) the patient has a cognitive and psychiatric disorder, (2) at a level that cannot answer questions, (3) individuals who have been diagnosed with cancer are not included in the study. The dependent variables of the research are chronic pain coping situations, and the independent variables are the factors affecting chronic pain (socio-demographic and disease characteristics).

Collection of data

Data were collected using the Individual Identification Form, the Visual Analogue Scale (VAS) and the Pain Coping Inventory (PCI).

Individual introduction Form

This form has been prepared by the researchers based on the literature [1-10].and consists of questions about the socio-demographic characteristics and disease status of individuals.

Visual analogue scale (VAS)

In the study, pain was assessed by VAS on which numbers from 0 to 10 were placed at equal intervals on a 10-cm horizontal line. The patients were asked to mark the number that reflected their pain and '10' indicated the presence of very severe pain. For the severity of the pain evaluated, it is usually evaluated as 0 points "no pain" and 10 points "the worst pain imaginable" (10cm scale). In the evaluation of the score obtained, < 3 means mild pain, 3-6 means moderate pain, and > 6 means severe pain [11].

Pain coping inventory (PCI)

The scale developed by Kraaiaat and Evers in 2013 assesses how often individuals experiencing chronic pain use behavioral and cognitive methods to cope with pain (19). As the score obtained on the scale increases, the rate of using pain coping behaviors also increases. The original form of the scale consists of six sub-dimensions, active in the form of transforming pain, moving away and reducing demand; passive in the form of withdrawal, worrying and rest [12]. The scale scoring is made between 1 (almost never) and 4 (very often). The validity and reliability study of the scale in Turkish was conducted by Hocoğlu et al [13]. The sub-dimensions are scored by dividing by the number of items. Bottom of the scale the Cronbach Alpha internal consistency coefficients of the dimensions were calculated as 0.76 for distancing, 0.77 for transforming pain, 0.53 for relaxing thinking, 0.69 for anxiety, 0.73 for rest and 0.61 for withdrawal [13].

Results

It was determined that 59.0% of individuals included in the study were women, 40.9% were in age group of 45-64 years, average age was 52.8 ± 11.4, 37.4% were primary school graduates, 90.3% were married, 73.4% had nuclear family, 83.2% were unemployed, 69.9% stated their income status were middle (table 1).The individuals were HD patients 42.4% of them have this disease for 6-10 years and were undergoing hemodialysis treatment for 84.12 ± 22.06. It was found that92.6% of the individuals' vascular insertion site had arteriovenous fistula, BMI of 74.2% was normal, and transplantation was not planned for 88.6%.

Variables	Active Pain Coping Strategies		Passive Pain Coping Strategies		
	n (%)	x ± SS	Test/p value	x ± SS	Test/p value
Gender					
Female	49 (59.0)	1.94 ± 0.44	z= -0.081*	2.97 ± 0.59	z= -2.137*
Male	34 (41.0)	1.76 ± 0.43	p= 0.713	2.51 ± 0.61	p= 0.030
Ages					
25-44 ages	23 (27.7)	1.79 ± 0.35	c2=2.983**	2.54 ± 0.62	c2=0.564**
45-64 ages	34 (40.9)	2.18 ± 0.21	p= 0.122	2.51 ± 0.50	p= 0.682
65 ages and above	26 (31.4)	1.66 ± 0.19		2.88 ± 0.84	
Marital Status					
Married	75(90.3)	1.81 ± 0.31	z= -0.127*	2.74 ± 0.49	z= -3.414*
Single	8 (9.7)	2.04 ± 0.61	p= 0.899	1.86 ± 0.34	p= 0.034
Educational level					
Literate	11 (13.2)	2.28 ± 0.54	c2=7.458**	2.77 ± 0.30	c2=0.864**
Primary School	31 (37.4)	1.96 ± 0.43	p= 0.069	2.75 ± 0.53	p= 0.765
Secondary School	23 (27.7)	1.97 ± 0.45		2.78 ± 0.63	
High School	18 (21.7)	1.87 ± 0.32		2.61 ± 0.75	

Working Status					
Working	14 (16.8)	2.01 ± 0.54	z= -0.692*	2.17 ± 0.47	z= -2.142*
Unemployed	69 (83.2)	1.91 ± 0.45	p= 0.489	2.61 ± 0.61	p= 0.032
Income Status					
Low	18 (21.7)	2.25 ± 0.63	c2= 0.972**	2.90 ± 0.55	c2= 7.256**
Middle	58 (69.9)	1.82 ± 0.57	p= 0.611	2.12 ± 0.320	p= 0.009
High	7 (8.4)	1.86 ± 0.41		2.58 ± 0.30	
Family Type					
Nuclear family	61 (73.4)	1.87 ± 0.21	c2= 1.011**	2.67 ± 0.13	c2= 1.057**
Extended family	14 (16.8)	2.01 ± 0.38	p= 0.507	2.58 ± 0.21	p= 0.614
Broken families	8 (9.8)	1.81 ± 0.52		2.62 ± 0.12	

Table 1: Comparison of Pain Coping Inventory (PCI) active and passive pain coping dimensions according to some socio-demographic characteristics (n=83).

*Mann Whitney-U test z value. **Kruskal Wallis test Chi-square value.

The information about the pain experienced by HD patients and the use of medications is presented in (table 2). The majority of patients (92.7) used painkillers for pain, about half (42.1%) experienced knee/leg pain, followed by back/lower back pain with 39.7%. It was reported that 48.0% of the participants used the NSAID group for pain, and 85.7% of them benefited from these painkillers. However, individuals of the state with the highest increase in pain hemodialysis sessions (%51.8), walking (%20.4) and long-term survival (%14.4) is the rest of the most pain, which reduces the activity (%439.8), sleep (%21.7), and massage (%15.6) were noted (Table.2).

Variables n (%)		Active Pain Coping x ± SS/ Test Value		Passive Pain Coping x ± SS/ Test Value	
Use of drugs for pain					
Yes	77 (92.7)	1,94 ± 0,46	z= -0,612*	2,88 ± 0,43	z= -3,126*
No	06 (7.3)	2,42 ± 0,58	p= 0,584	2,02 ± 0,76	p= 0,003
The group of drugs					
NSAID	37 (48.0)	1,84 ± 0,14		2,64 ± 0,42	
Weak opioid	13 (16.8)	1,78 ± 0,24	c2= 1,812**	2,52 ± 0,28	c2= 4,129**
Strong opioid	2 (2.6)	1,54 ± 0,02	p= 0,764	3,23 ± 0,16	p= 0,504
Antidepressant	12 (15.6)	2,32 ± 0,48		2,26 ± 0,04	
Muscle relaxants	13 (16.8)	1,96 ± 0,54		2,72 ± 0,34	
Benefit from the analgesic medication used (n=77)					
Yes	66 (85.7)	1,86 ± 0,44	z= -0,323*	2,64 ± 0,53	z= -1,304*
No	11 (14.3)	2,21 ± 0,39	p= 0,604	2,77 ± 0,78	p= 0,182

Pain zone					
Back/Waist	13(39.7)	2,14 ± 0,35		2,69 ± 0,24	
Knee/legs	35 (42.1)	1,92 ± 0,28	c2= 10,302**	2,65 ± 0,47	c2= 4,039**
Head/neck	10 (12.0)	2,06 ± 0,50	p= 0,067	2,71 ± 0,67	p= 0,544
Whole body	25 (30.2)	1,72 ± 0,51		2,38 ± 0,70	
Conditions that increase pain					
Staying afloat	12 (14.4)	1,83 ± 0,35		2,73 ± 0,37	
Walk	17 (20.4)	1,84 ± 0,21	c2= 4,764**	2,69 ± 0,21	c2= 2,146**
Hemodialysis seans	43(51.8)	2,18 ± 0,44	p= 0,246	2,55 ± 0,46	p= 0,719
Stress	5 (6.02)	1,64 ± 0,18		2,71 ± 0,64	
Humidity/rain	6 (7.22)	1,66 ± 0,52		2,25 ± 1,06	
Conditions that decrease pain					
Take a rest	33(39.8)	2,98 ± 0,84		2,21 ± 0,68	
Sleep	18 (21.7)	2,76 ± 0,26	c2= 1,214**	2,15 ± 0,73	c2=3,299**
Hot application	6 (7.3)	1,44 ± 0,32	p= 0,004	2,86 ± 0,24	p= 0,343
Massage	13 (15.6)	1,13 ± 0,55		2,83 ± 0,32	
Movement/ walking	3 (3.6)	2,95 ± 0,52		2,51 ± 0,04	

Table 2: Pain Coping Inventory (PCI) Comparison of Active and Passive Pain Coping Dimensions According to Some Characteristics (n=83).

*Mann Whitney-U test z-value, **Kruskal Wallis test Chi-square value a Only the respondents were taken.

There is no significant difference between the active pain coping strategies total score of individuals and any variable (p > 0.05). Only a significant relationship was found with the factors that cause pain (p < 0.05). While there was no significant difference between passive pain coping strategies total score and age, educational status, pain zone, drug group used, conditions that increase pain (p > 0.05); there is a significant difference between gender, marital status, employment status, income level, pain medication use (p < 0.05). The PCI general score and VAS Scale averages of HD patients are listed in Table-3. The mean VAS score of the participants was 6.84 ± 2.12 (min. 2-max. 10) was determined. The average score of the HD patients participating in the study was 1.95 ± 0.54 in the PCI Active Coping sub-dimension; the average score of the Passive Coping sub-dimension was 2.58 ± 0.62 (Table 3).

Discussion

Patients with End-Stage Renal Disease (ESRD) receiving maintenance dialysis suffer from a multitude of physical and emotional symptoms, exhibit a particularly high prevalence of pain, and experience substantial impairments in quality of life [9]. Our study showed that pain is common in patients who are using painkillers (92.7%) on long-term HD. The most commonly used drug was 48.0% NSAIDs, while 85.7% of patients who used the drug said that their pain was relieved. Although medication has an important effect on the well-being of HD patients, the Kidney Disease Outcomes Quality Initiative (K/DOQI) guidelines have not addressed the use of pain management.

	c2±SS	Min.-Maks.
VAS		6.84 ± 2.12
Pain Coping Inventory (PCI) Sub-Dimensions		
Active Pain Coping	1.95 ± 0.54	1-3.14
Remove	2.04 ± 0.62	1-3.23
Transforming pain	1.62 ± 0.74	1-3.47
Relaxing thinking	2.13 ± 0.58	1-3.53
Passive Pain Coping	2.58 ± 0.62	1-3.72
Concern	2.36 ± 0.64	1-4.12
Resting	2.79 ± 0.76	1-4.65
Retreat	2.46 ± 0.62	1-3.84

Table 3: The dimensions of active and passive pain coping of HD patients and the Average of VAS Pain Scores.

Pain in HD patients is inadequately managed as analgesic use has decreased over the last few years [14]. Morphine was the analgesic of choice for treatment of severe acute and chronic pain syndromes during the last decade. Several authors [15-16] have confirmed the variability in the kinetics of morphine and its metabolites in the presence of renal impairment. According to them, renal patients are at greater risk of developing opiate toxicity with prolonged effects and severe respiratory depression [15-16].

There is relatively little information about the origin, incidence, and treatment of pain. A systematic review of the prevalence of End-Stage Renal Disease (ESRD) symptoms reported the prevalence of pain was 47% [17]. Most patients have pain severity varying from moderate to severe [18]. The mean VAS pain score of the patients in our research group was found to be 6.84 ± 2.12 (moderate). Three-quarters of ESRD patients suffer from insufficiently treated or untreated pain. This problem is due to a variety of factors: caregivers are not aware of this problem and worry about the negative effects of analgesic treatment, and patients are afraid of the side effects of medication, the extra load of daily tablets, and the potential addiction risk if opioid medications are used [19].

Multiple factors can cause pain in HD patients. HD sustains life, but it cannot stop underlying systemic diseases and their painful symptoms. Here are numerous painful syndromes unique to HD such as calciphylaxis [20], renal osteodystrophy [21]. Kafkia and colleagues conducted a study with 70 HD patients in which 46% of patients described pain in their legs [22]. Similarly, in our study, 42.1% of the patients stated that they experienced pain in the legs.

Pain was present more often in females and as patient age and dialysis duration increased, the incidence of pain increased. Some studies reported no effect on pain of patient age and sex among HD patients [22]. The study by Caravaca et al. reported that females and older patients had more incidence of pain among HD patients, similar to our results [23]. Females have a tendency to express their complaints more than males, and this situation also supports the hypothesis that females are more sensitive to pain due to mechanisms related to both peripheral and central perception systems [24]. In the general population, the elderly are more susceptible to chronic pain and it is proposed that this situation may be due to pain formation linked to involuntional changes and chronic diseases in the organism, pain being due more to degenerative changes in the locomotive system, and inorganic reasons such as fear and depression. There is increasing

awareness that pain is one of the most common problems experienced by HD patients, and this situation is associated with increased depression and reduced quality of life (QOL) [25-26]. Disrupted QOL among HD patients was found to be associated with a higher risk of mortality and hospitalization independent of a range of demographic and comorbid factors.

These psychosocial and spiritual factors interact with physical symptoms and suffering of the patient and need to be addressed in pain management. The patients in our study group stated that they coped with the pain by sleeping, massaging and resting. The mean scores of the active coping with pain strategy of the massage patient group were also found to be significantly higher. Reinforce or modify pain control behaviors by observing patients to see what they do to reduce or control pain. Such observation may provide important information for tailoring nursing interventions to a specific patient. Patients often use techniques of positioning, rubbing and splinting to decrease or limit pain. Massage of a painful limb, either by the patient himself or by the nurse, can decrease muscle tension and can break the cycle of tension, increased pain, and increased tension. In addition, it can help bring about mental and physical relaxation and strengthens the nurse-patient relationship [15-20].

Conclusion

Pain is a significant problem for the majority of HD patients and is not effectively managed. To increase the quality of life of patients, the care team should regularly question pain symptoms and the pain should be treated effectively. Pain assessment is a critical component of nursing process. It is mandatory to provide further education to clinical nurses in order to effectively manage pain. A detailed nursing history should be obtained focusing on pain location, duration, associated symptoms and relieving factors. This way nurses, not only renal nurse, can better understand each dimension of pain, assess it and take nursing decisions for its management.

Study Limitations

It was performed in a single health care center. Therefore, results of the study cannot be generalized for other patients.

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Competing Interests

The authors declare that they have no conflicts of interest.

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