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PAIN CHARACTERISTICS ON PATIENT UNDERTAKING HEMODIALYSIS

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Abstract
Background: Research in pain especially in patients undertaking hemodialysis is important to be conducted in order to help the process of their hemodialysis therapy.
Aim: The aim this study was to describe pain characteristic on hemodialysis patient using Visual Analogue Scale (VAS) and mnemonic PQRST (Provocation, Quality, Regio, Radiation and Time).
Methods: This was a descriptive quantitative cross-sectional research. The number of respondents were 72 and they routinely undertook hemodialysis therapy twice a week. The study was conducted in one central hospital in Yogyakarta Indonesia on February to March 2017. Univariate analysis was used to describe respondents' pain characteristic.
Results: The majority of respondents (51.39%) experienced moderate pain, followed by mild pain (33.33%) and severe pain (15.28%). The most painful characteristic in the provocation aspect was movement (87.50%), and the quality of pain was knife-like pain (83.33%). Moreover, hand was the major area of pain (84.72%), and there was no radiation of pain (91.67%). Most of pain was intermittent (97.22%). Of 53% of respondents expressed that the pain had an impact on their lives, specifically in their activities (52.63%), followed by others (15.79%), nausea/vomiting (15.79%), sleep disturbance (13.16%), and appetite (13.16%). However, the pain did not have an impact on their emotion.
Conclusion: The respondents experienced mostly moderate pain. The percentage of pain characteristics on PQRST mnemonic was above 80%, and more than half of the respondents experienced moderate pain. Majority of the respondents felt the impacts of the pain in their lives.

Keywords*:* hemodialysis; pain; *Visual Analogue Scale*; mnemonic PQRST

INTRODUCTION

Hemodialysis is a therapy for patient with chronic renal failure and having a problem with electrolyte and fluid imbalanced (Black & Hawks, 2009). Hemodialysis will be applied when renal function less than 75%. However, hemodialysis therapy may cause pain either acute pain or chronic pain (Johnson, Feehally, & Floege, 2014).

Pain is considered as vital sign and need to be assessed by nurses besides body temperature, blood pressure, heart rate and respiratory rate (Ball, Dains, Flynn, Solomon, & Stewart, 2014). The reason why pain is considered as vital sign because pain can be used to measure patient's quality of life (Hsu et al., 2014). However, pain is a unique experience for each

patient and it has different characteristic and intensity for each patient (Ball et al., 2014).

Pain is general symptoms mostly experienced by patient undertaking hemodialysis and creates overwhelmed feeling for patient (Davison, 2003). Pain also influences quality of life and also individual role performance, create anxiety and depression for patient undertaking hemodialysis (Theofilou, Aroni, Tsironi, & Zyga, 2013).

Research found that as many as 50% patient undertaking hemodialysis therapy experience acute pain and this lead to the most nursing diagnoses established in this population (Nurjannah & Mailani, 2016). Majority patients who undertake hemodialysis have moderate pain (Santoro et al., 2013). One research found that in 53 patients undertaking hemodialysis there were 81.1% of patient expressed cramps as their characteristic of pain, 62.3% expressed dizzines and 15.1% expressed fistula pain when undertaking hemodialysis (Polkinghome & Kerr, 2016). Other research found that when undertake hemodyalisis, patient felt pain on their musculoskeletal, pain related procedure, peripheral neuropathy and peripheral vascular disease (O'Connor & Corcoran, 2012). In addition, another research also found that one of the cause of pain was related to hemodialysis procedure (Harris et al., 2011). Needle insertion, muscle cramps, abdominal and cardiac pain, and headaches were patient's pain during hemodialysis therapy (Santoro et al., 2013). However, currently the prevalence, the cause and the level of pain on patient undertaking hemodyalisis rarely to be explored (Davison, 2003).

METHODS

Study design

This is a descriptive quantitative cross-sectional research. The aim of this study is to identify pain characteristic on hemodyalisis patient using Visual Analogue Scale (VAS) and mnemonic PQRST.

Setting

Research was conducted in one haemodialysis unit, in one central hospital in Yogyakarta, Indonesia.

Population and sample

Sample method was using simple random sampling. Inclusion criterias were patient more than 18 years old, routinely undertaking hemodialysis and experienced pain from mild, moderate or severe pain from VAS score. Exclusion criteria was patient unable to communicate.

Instruments

Instrument in this study was a questionnaire. This questionnaire consisted of demographical data, Visual Analogue Scale (VAS) and mnemonic PQRST. Visual Analogue Scale is an instrument to measure pain in quantitative method. This instrument consist of horizontal line with scale from 0 to 10 in which 0 means no pain and 10 means severe pain (da Silva et al., 2015). Visual analogue scale is a standard instrument which no need to be measured for its validity and reliability (Hjermstad et al., 2011). Mnemonic PQRT is one of mnemonic or abbreviation that used to assess pain 12. This mnemonic consists of 7 questions. This mnemonic instrument was modified from one hospital form and modified using literature from Falk & Hudson 2016 (Lanser & Gesell, 2001). However, mnemonic PQRST have not been measured for validity and reliability.

Data collection and analysis

Data collection was conducted from February to March 2017 involved 72 respondents. Univariate analysis was used to describe respondent's characteristic such are age and gender. This research has been approved by Ethic Committee from Faculty of Medicine Universitas Gadjah Mada on 13th December 2017.

RESULTS

The characteristic of the respondents can be seen in Table 1 below.

Table 1 Respondents' characteristic of hemodialysis patients with acute pain (n=72)

Characteristics	Frequency (f)	Percentage (%)	Mean ± SD
Gender			
Male	36	50	51.52 ±14.16
Female	36	50	52.3 ±12.96
Age			
22-28 years old	3	4.17	51.91 ± 13.48
29-35 years old	7	9.72	
36-42 years old	7	9.72	
43-49 years old	14	19.44	
50-56 years old	15	20.83	
57-63 years old	9	12.50	
64-70 years old	11	15.28	
71-77 years old	5	6.94	
78-84 years old	1	1.39	
Length of hemodialysis therapy (in month)			55.12 ± 60.48

Acute pain level of patient undertaking hemodialysis

The majority of the respondents experienced moderate pain (Table 2).

Table 2 Acute pain scale on patients undertaking hemodialysis (n=72)

Pain level	Frequency (f)	Percentage (%)	Mean ± SD
Mild	24	33.33	2.8 ± 0.3
Moderate	37	51.39	4.8 ± 0.5
Severe	11	15.28	7.0 ± 1.1
Total	72	100.00	4.8 ± 0.6

Acute pain characteristic of patient undertaking hemodialysis

Pain characteristic consisted of seven components from PQRST which are: provocation, quality, region, radiation, severity, time and impact that could be seen in the Table 3 below.

Table 3 Pain acute characteristic based on mnemonic PQRST on patient undertaking hemodialysis (n=72)

Pain characteristic	Frequency (f)	Percentage (%)
Provocation		
Movement	63	87.50
Laying	3	4.17
Others	6	8.33
Quality		
Knife-like Pain	60	83.33
Throbbing	5	6.94
Pulling	1	1.39
Cramps	15	20.83
Others	1	1.39
Region		
Hand	61	84.72
Foot	12	16.67
Head	5	6.94
Arm	1	1.39
Radiation		
Yes	6	8.33
No	66	91.67
Severity		
Mild	24	33.33
Moderate	37	51.39
Severe	11	15.28
Time		
Continue	2	2.78
Intermittent	70	97.22
Impact to You		
Nausea/Vomiting	6	15.79%
Activities	20	52.63%
Emotion	0	0.00%
Sleep Disturbance	5	13.16%
Appetite	5	13.16%
Others	6	15.79%

DISCUSSION

The results showed that the number of male and female patients undertaking hemodialysis was equal. This result was similar with the data stated from Indonesian nephrology association (PERNEFRI, 2014).

The results also showed that most of respondents undertook hemodialysis for about 4 years similar to previous research (Claxton, Blackhall, Weisbord, & Holley, 2010). All respondents also undertook hemodialysis twice a week (PERNEFRI, 2014).

In regards to the characteristics of pain, the majority of respondents experienced moderate pain. This pain might be influenced by demographic characteristic or ethnic, dialysis

therapy process, cause of pain, cause of chronic renal disease and other comorbid factors (Davison, 2003). The perception related to pain of patient undertaking hemodialysis can be also influenced by increasing level of stress (Harris et al., 2011). Moreover, it is known that pain is subjective sensation in which individual might have different perception and tolerance level. The tolerance level toward pain is a point in which individual unable to feel the pain anymore with higher severe level of pain and longer duration of pain (Potter & Perry, 2011).

The results also showed that the movement was the most factor that triggered pain as many as 87.50% of the respondents. The respondents stated that the pain is mostly caused by invasive procedure and this is the reason why their quality of pain was mostly knife-like pain. This is similar with other research, which invasive procedure (needle insertion), uremia complication which lead to cramp and comorbid factors were also the cause of pain (Harris et al., 2011).

As invasive procedure is considered as the cause of pain, in this study, hand is a part of body with the most of pain (84.72%). It is because this area is an area for hemodialysis procedure insertion (Özkan & Ulusoy, 2011). In addition, part of the body which experience pain most was lower extremity, even though hand, arm, abdomen may also experience cramp in hemodialysis process (Özkan & Ulusoy, 2011).

The majority of the respondents also felt that there was no radiation in the pain. It is because superficial or cutaneous stimulation is localized (Potter & Perry, 2011). In regard to the timing, similar to other research, the most pain experienced by respondents was intermittent, which means it does not feel continuously (Carpenito, 2013). The pain because of invasive procedure occurred in short period of time (Potter & Perry, 2011).
For the impact of pain, the majority of the respondents stated that pain had an impact to their activities (Santoro et al., 2013). This is similar with another research revealed that pain undertaking hemodialysis had physical, mental, and social impact, including decreased daily activities, sleep disturbance, symptoms of anxiety and depression (Santoro et al., 2013).

CONCLUSION

The majority of the respondents experienced moderate pain, with movement as a factor that makes pain getting worse. A knife-like pain was the most quality of pain, with hand as the region for feeling pain. Most of the respondents felt no radiation in pain and characterized by intermittent pain.

Declaration of Conflicting Interest
None declared.

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Author Contribution
All authors contributed equally in this study.

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