PAIN CHARACTERISTICS ON PATIENT UNDERTAKING HEMODIALYSIS

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Abstract

Background: Research in pain especially in patient undertake hemodialysis is important to be conducted in order to help this population in the process of their hemodialysis therapy.

Aim: The aim this study is to identify pain characteristic on hemodialysis patient using Visual Analogue Scale (VAS) and mnemonic PQRST.

Method: This is a descriptive quantitative cross-sectional research. The number of respondent were 72 and they routinely undertake hemodialysis therapy twice a week. Research was conducted in one Central Hospital in Yogyakarta, Indonesia on February to March 2017. Univariate analysis was used to describe respondents’s pain characteristic.

Results: The majority of respondents (51.39%) experience moderate pain, following by mild pain (33.33%) and severe pain (15.28%). In Provocation aspect the most characteristic was movement (87.50%), for the Quality characteristic the most aspect was knife-like pain (83.33%). Moreover, in Regio characteristic was on hand (84.72%), No Radiation of pain (91.67%), and for Time characteristic was intermittent (97.22%). As many as 53% respondents expressed that pain have an impact on their life. Consequences of pain most was in their activities (52.63%), following with others (15.79%), nausea/vomiting (15.79%), sleep disturbance and appetite (both 13.16%). However, pain did not have an impact on their emotion.

Conclusion: Respondents experience mostly moderate pain. The percentage of characteristics on PQRST mnemonic each percentage of Provocation, Quality, Regio, Radiation and Time reach was above 80% of respondents, while for Severity more than half of the respondent experienced moderate pain. The majority of respondents felt the impact of pain in their life.

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, Feethally, & 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 hemodialysis, 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 hemodialysis 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 hemodialysis 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 was consist 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 PQRST 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 respondents 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 respondents can be seen in Table 1 below:
The results showed that the number of male and female patient undertaking hemodialysis was equal. This result is similar with the data stated from Indonesian nephrology association (PERNEFRI, 2014).

### DISCUSSION

The majority of respondents experienced moderate pain as can be seen in table 2.

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

<table>
<thead>
<tr>
<th>Pain level</th>
<th>Frequency (f)</th>
<th>Percentage (%)</th>
<th>Mean ± SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mild</td>
<td>24</td>
<td>33.33</td>
<td>2.8 ± 0.3</td>
</tr>
<tr>
<td>Moderate</td>
<td>37</td>
<td>51.39</td>
<td>4.8 ± 0.5</td>
</tr>
<tr>
<td>Severe</td>
<td>11</td>
<td>15.28</td>
<td>7.0 ± 1.1</td>
</tr>
<tr>
<td>Total</td>
<td>72</td>
<td>100.00</td>
<td>4.8 ± 0.6</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Pain characteristic</th>
<th>Frequency (f)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provocation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Movement</td>
<td>63</td>
<td>87.50</td>
</tr>
<tr>
<td>Laying</td>
<td>3</td>
<td>4.17</td>
</tr>
<tr>
<td>Others</td>
<td>6</td>
<td>8.33</td>
</tr>
<tr>
<td>Quality</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Knife-like</td>
<td>60</td>
<td>83.33</td>
</tr>
</tbody>
</table>

Acute pain level of patient undertaking hemodialysis
The majority of respondents experienced moderate pain as can be seen in table 2.

#### Table 1 Respondents’ characteristic of hemodialysis patient with acute pain (n=72)

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

Acute pain characteristic of patient undertaking hemodialysis
Pain characteristic are divided into seven components from PQRST which are: provocation, quality, regio, radiation, severity, time and impact as can see in the table 3 below

The results showed that the number of male and female patient undertaking hemodialysis was equal. This result is similar with the data stated from Indonesian nephrology association (PERNEFRI, 2014).
Result also showed that most respondents have undertaking hemodialysis for about 4 years similar to previous research (Claxton, Blackhall, Weisbord, & Holley, 2010). All respondents also undertaking hemodialysis twice a week (PERNEFRI, 2014).

Regarding to the characteristics of pain, the majority of respondents were experience moderate pain. This pain may influenced by demographical characteristic or ethnic, dialysis therapy process, the cause of pain, the 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 may 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).

Results showed that movement is the most factor that triggered pain as many as 87.50% respondents. 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 considered as the cause of pain, in this study, hand is 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 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 respondents also feel 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 means it does not feel continuously (Carpenito, 2013). While, the pain because of invasive procedure was occur in short period of time (Potter & Perry, 2011).

Then for the impact of pain, majority respondents stated that pain given impact to their activities (Santoro et al., 2013). This is similar with another research pain undertaking hemodialysis that gave physical impact, mental impact and social impact included decreased daily activities, sleep disturbance, symptoms of anxiety and depression (Santoro et al., 2013).

CONCLUSION

The majority of respondents experience moderate pain, with movement as a factor that makes level of pain getting worse. A knife-like pain is the most quality of pain, with hand as regio for feeling pain. Most respondents feel no radiation in pain and characterized by intermittent pain.

ACKNOWLEDGEMENT

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REFERENCES

Carpenito, L. (2013). Nursing Diagnosis Application to Clinical Practice Philadelphia: Lippincot Williams & Wilkins.
