Factors Affecting Sleep Disturbance and Suggested Guidelines for Patients Undergoing Hemodialysis

Eman Gamal Ahmed Mohammed¹, Marwa Mostafa Ragheb², Manal Hamed Mahmoud³ & Samah Elsayed Ghonaem⁴.

¹ Demonstrator of Medical Surgical Nursing, Faculty of Nursing, Benha University, Egypt.
² Professor of Medical Surgical Nursing, Faculty of Nursing, Benha University, Egypt.
³ Assistant professor of Medical Surgical Nursing, Faculty of Nursing, Benha University, Egypt.
⁴ Lecturer of Medical Surgical Nursing, Faculty of Nursing, Benha University, Egypt.

Abstract

Background: Sleep disorders are one of the most commonly reported complaints with high prevalence rate among hemodialysis patients than general population. Aim: the study aimed to assess factors affecting sleep disturbance and suggest guidelines for patients undergoing hemodialysis. Design: Descriptive research design was utilized. Setting: The study was conducted in hemodialysis unit at Benha University Hospital. Sample: A convenience sample of 84 adult patients undergoing hemodialysis during 4 months of data collection was selected. Tools: data were collected using three tools, (1) patient's assessment questionnaire included (demographic characteristics, medical history data, hemodialysis feature and patients’ knowledge about hemodialysis and sleep disturbances), (2) factors affecting quality of sleep scale, (3) Pittsburg Sleep Quality Index (PSQI). Results: 67.8% of patients were poor sleepers (global PSQI>5). The most commonly reported factors that affect sleep disturbance among hemodialysis patients were environmental, psychological factors, complaint of other diseases and factors that help sleep. Demographic and disease characteristics had no significant effect on sleep quality. Additionally, there is no statistically significant relation between total scores of PSQI components and hemodialysis patients' sex except sleep quality and patients’ age except daytime dysfunction. Linear regression analysis showed that early cessation of hemodialysis decreased sleep quality and listening to Quran, taking a warm bath, relaxing and organizing the sleeping environment and commitment to the diet decreased sleep disturbance. Conclusion: findings of the study showed that many factors such as lifestyle, environmental and physiological, psychological factors, as well, suffering from other diseases and factors associated with dialysis increased patients' sleep disturbance. Recommendations: The study recommended developing health educational program for hemodialysis patients regarding avoidance of sleep disturbances and how to improve sleep quality.

Keywords: Hemodialysis, Sleep disturbance, Suggested guidelines.

Introduction

Renal failure is a life-threatening condition in which there is a buildup of waste and fluid in the body due to severe deterioration of kidney function (Chiras, 2018). Renal failure is loss of some but not all of the filtration capacity of both kidneys, which can result from falling in blood pressure, urinary tract abnormalities, an obstruction of the blood circulation to the kidneys, urine outflow blockage and renal
diseases. It may occur as an acute or chronic condition (Walser & Thorpe, 2010).

Hemodialysis is the most common method used to treat advanced and permanent kidney failure and other toxic conditions (Zazzeroni, et al., 2017). Hemodialysis (HD) defined as a life saving procedure that uses a special machine to filter waste products from the blood and to restore normal constituents to it. HD is done 3 times a week and each session lasts from 3 to 4 hours. HD extends life and permits the expression of much progressive multisystem disease (Azar, 2012).

Sleep disturbances are extremely frequent among ESRD patients receiving long-term dialysis that can impact their daily quality of life and is linked to complications for many body systems (Abdel-Aatty, et al., 2015). The prevalence of sleep disturbances in ESRD patients is elevated due to the presence of regular risk factors such as age, sex, over weight and other physical factors associated with uremia and dialysis treatment as (anemia, uremic toxins, inflammation, fluid overload, muscle cramps, itching, drugs side effects and dialysis shift) which influence their ability to perform daily activities (Agarwal & Light, 2011).

Poor sleep quality among dialysis patients is also associated with psychological factors as depression and anxiety, environmental and lifestyle factors such as sedentary lifestyle, hemodialysis time and drinking habits (Wang, et al., 2013). Chronic kidney disease patients complain from sleep disorders early during CKD stage 1 and 2 and might worsen with decrease of renal function (De Santo, et al., 2010). Hemodialysis patients complain from various types of sleep disorders, the most frequently reported types are insomnia, sleep apnea, restless leg syndrome (RLS), excessive daytime sleepiness (EDS) and periodic limb movement (PLM) (Nigam, et al., 2018).

Nurses play an essential and effective role in promoting healthy sleep of poor sleepers. Nursing actions should be based on determining factors and causes affecting patient’s sleep pattern. Suggested guidelines which are provided for patients have an important role in helping them to know definition, causes, types, treatment of sleep disorders and providing general solutions and advices for improving sleep quality (Otaghi, et al., 2016).

Significance of the study

In the world a total of 80% of end stage renal disease patients undergo hemodialysis as a treatment (Saiednejad, Ajorpaz & Aghajani, 2018). In developing countries like Egypt, there is an increase in the annual incidence of ESRD which is about 74 per million and in the prevalence from 225 per million of population (pmp) to 483 pmp with the total prevalence of patients on dialysis is 264 pmp (Al-Mawsheki, Ibrahim & Taha, 2016; Bayoumi, El Guindy & Ahmed, 2016). The number of patients diagnosed with the disease and undergoing hemodialysis in
hemodialysis unit at Benha University Hospital in the year (2016) was 84 patients (Benha University Hospital Statistical Office, 2016).

Many patients with end-stage renal disease undergoing dialysis therapy suffer from sleep disturbances as a commonly linked complication; occur in about 40 to 80 percent of patients which has been widely reported to have variable severities of sleep disorders. They have a significant negative impact on patients’ physical and social performance, their psychological status and ability to work, their quality of life and wellbeing. It also increases the risk of cardiovascular diseases, infections and associated with high morbidity and mortality rates (Kumar, Suri & Sen, 2018).

Sample and method

Aim of the study:

The present study was conducted to fulfill the following aim:

Assess factors affecting sleep disturbance and suggest guidelines for patients undergoing hemodialysis.

Research question:

To achieve the aim of this study the following research question is formulated:

What are factors that affect sleep disturbance among patients undergoing hemodialysis?

Research Design:

Descriptive design was used to carry out the current study.

- Setting:

The study was conducted in hemodialysis unit at Benha University Hospital. The hemodialysis unit contains 25 beds with 25 machines. All patients are divided into three groups through three shifts (morning, afternoon & evening), every group attains the hemodialysis sessions three times per week.

- Sample:

A convenience sample of all patients (84 adult patients) who admitted to the hemodialysis unit at Benha University Hospital during four months of data collection from the beginning of July, 2018 to the end of October, 2018, with age ranged from 20 to 60 years old, from both sex, with different educational levels, with end stage renal failure and undergoing hemodialysis treatment program, able to communicate and agreed to participate in this study. Patients diagnosed with psychosis or currently undergoing antipsychotic treatment were excluded from the study.
Tools for data collection:

Three tools were used for data collection:

**Tool I**: Patient's assessment questionnaire.

This tool was adapted by the researcher and translated into Arabic language after reviewing the related literatures (Ali, et al., 2011; Sharaf, 2016 & Delmas, et al., 2017). It was divided into four main parts:

**Part 1**: Demographic characteristics of patients with end stage renal failure that included patient's age, sex, occupation, nature of work, educational level, residence, marital and economic status of the patients.

**Part 2**: Medical history data such as: primary and secondary causes of renal failure, co-morbidities associated with renal failure, problems with urination and skin changes.

**Part 3**: Questions related to hemodialysis: it included date of occurrence of the disease, time of beginning renal failure symptoms, time of first hemodialysis session, frequency, duration of hemodialysis per week, problems encountered during hemodialysis and objective data included patients' weight, blood pressure and temperature pre and post hemodialysis session and site of vascular access.

**Part 4**: Patients' knowledge about hemodialysis and sleep disturbances: it was composed of 9 items about definition of hemodialysis, types of vascular access used in hemodialysis process, improving the efficiency of hemodialysis, benefits of sleep, factors affecting sleep quality, types, signs and symptoms, complications and treatment of sleep disturbances.

**Tool II**: Factors affecting quality of sleep scale: this tool was adapted from (Abou El-Atta, 2013) and used to assess factors affecting sleep quality for patients undergoing hemodialysis. It included 7 factors and each factor contained sub items; lifestyle related factors, environmental, physiological, psychological factors, complaint of other diseases, factors associated with dialysis and factors that help sleep.

**Tool III**: Pittsburgh Sleep Quality Index (PSQI): this tool was developed by (Buysse, et al., 1989), adapted and translated into Arabic by the researcher. It was designed to assess quality of nocturnal sleep among hemodialysis patients within the previous month immediately before data collection period. It contains 19 self-rated questions which combined to form seven dimensions or components of sleep quality.
Field work:
- Tools for data collection were developed after reviewing current and past, local and international related literatures and theoretical knowledge of various aspects of the study using books, articles and internet.
- The purpose of the study was explained by the researcher to all patients included in the study and the oral ethical consent was obtained from them.
- Patients were assured that all information will be confidential and it will be used only for research purpose.
- The researcher visited the study setting 3 days weekly at morning and afternoon shifts to collect data and implement this study.
- Each patient was interviewed one time at hemodialysis unit to fill the tools of data collection.
- Each interview took approximately 15:20 minutes.
- Based on the assessment of factors affecting patient's sleep disturbance, the researcher developed suggested guidelines in Arabic language and gave to the patients.
- The actual field work was carried out through four months from the beginning of July, 2018 to the end of October, 2018.

Statistical design:
The collected data were organized, categorized, tabulated and analyzed using the number and percentage distribution. Statistical analysis was computed by Statistical Package for Social Sciences (SPSS version 19). Data were presented using descriptive statistics in the form of frequencies, percentages, mean degree and standard deviation (SD). Chi square test ($X^2$) were used for comparisons between qualitative variables to find out relations. T-test was used to determine if there was a significant difference between two groups of quantitative data, while f-test between more than two groups of quantitative data. In order to detect the regression rate of sleep quality among the studied sample linear regression analysis was used. Statistical significance was considered at p-value <0.05.

Results

Table (1): Distribution of studied patients regarding demographic characteristics (n=84).

<table>
<thead>
<tr>
<th>Demographic characteristics</th>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age/year:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• 18&lt; 30</td>
<td>5</td>
<td>6.0</td>
</tr>
<tr>
<td>• 30&lt; 40</td>
<td>17</td>
<td>20.2</td>
</tr>
<tr>
<td>• 40&lt; 50</td>
<td>24</td>
<td>28.6</td>
</tr>
<tr>
<td>• 50- 60</td>
<td>38</td>
<td>45.2</td>
</tr>
</tbody>
</table>
Table (1) shows that 45.2% & 52.4% of the studied patients were recorded within age group of 50-60 years old and were males respectively, while 85.7% & 82.1% of them were married and lived in rural areas respectively. In addition, 42.9% & 88.1% of them were illiterate and unemployed respectively.

Figure (1): Distribution of the studied patients’ total knowledge score regarding hemodialysis and sleep disturbances (n=84).

Figure (1) illustrates that 61.9% of the studied patients had unsatisfactory knowledge about hemodialysis and sleep disturbances, while 38.1% of them had satisfactory knowledge.
Table (2): Distribution of studied patients regarding environmental factors that increase patients' sleep disturbance (n=84).

<table>
<thead>
<tr>
<th>Environmental factors</th>
<th>Always</th>
<th>Usually</th>
<th>Sometimes</th>
<th>Rarely</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
<td>No.</td>
</tr>
<tr>
<td>Light</td>
<td>51</td>
<td>60.7</td>
<td>3</td>
<td>3.6</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>3.6</td>
<td>3</td>
<td>3.6</td>
<td>14</td>
</tr>
<tr>
<td>Noise</td>
<td>51</td>
<td>60.7</td>
<td>3</td>
<td>3.6</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>2.4</td>
<td>2</td>
<td>2.4</td>
<td>13</td>
</tr>
<tr>
<td>Change in room temperature</td>
<td>69</td>
<td>82.1</td>
<td>1</td>
<td>1.2</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>0.0</td>
<td>0</td>
<td>0.0</td>
<td>7</td>
</tr>
<tr>
<td>Discomfort of sharing others</td>
<td>43</td>
<td>51.2</td>
<td>1</td>
<td>1.2</td>
<td>26</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>2.4</td>
<td>2</td>
<td>2.4</td>
<td>12</td>
</tr>
</tbody>
</table>

Table (2) shows that 82.1%, 60.7%, 60.7% & 51.2% of the studied patients were always complaining from change in room temperature, light, noise and discomfort of sharing others respectively.

Table (3): Distribution of studied patients regarding complaint of other diseases that increase patients' sleep disturbance (n=84).

<table>
<thead>
<tr>
<th>Complaint of other diseases</th>
<th>Always</th>
<th>Usually</th>
<th>Sometimes</th>
<th>Rarely</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
<td>No.</td>
</tr>
<tr>
<td>Hypertension</td>
<td>43</td>
<td>51.2</td>
<td>0</td>
<td>0.0</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>1.2</td>
<td>1</td>
<td>1.2</td>
<td>39</td>
</tr>
<tr>
<td>Heart diseases</td>
<td>8</td>
<td>9.5</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>0.0</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>76</td>
<td>90.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diabetes</td>
<td>19</td>
<td>22.6</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>0.0</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>65</td>
<td>77.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arthritis</td>
<td>40</td>
<td>47.6</td>
<td>25</td>
<td>29.8</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>0.0</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>0.0</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
</tr>
<tr>
<td>Anemia</td>
<td>69</td>
<td>82.1</td>
<td>0</td>
<td>0.0</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>0.0</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>12</td>
<td>14.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>liver disease</td>
<td>1</td>
<td>1.2</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>0.0</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>83</td>
<td>98.8</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table (3) reveals that 82.1% & 51.2% of the studied patients were always suffering from anemia and hypertension respectively, while 98.8% & 90.5% of them were not suffer from liver and heart diseases respectively.

Figure (2): Distribution of studied patients regarding sleep quality rate (n=84).

Fig. (2), illustrates that 67.8% of the studied patients had very bad sleep quality rate. While 14.3% had fairly bad and 13.1% of them had fairly good sleep quality rate. But 4.8% of them had very good sleep quality rate.

Table (4): Liner regression for sleep quality rate and factors associated with hemodialysis (n=84).

<table>
<thead>
<tr>
<th>Items</th>
<th>Un standardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>1.848</td>
<td>.343</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Early cessation of hemodialysis</td>
<td>-.074</td>
<td>.151</td>
<td>-.056</td>
<td>-.488</td>
</tr>
<tr>
<td>Discomfort and fatigue during the hemodialysis session</td>
<td>0.126</td>
<td>.094</td>
<td>.153</td>
<td>1.346</td>
</tr>
<tr>
<td>Fear of complications during hemodialysis session</td>
<td>0.064</td>
<td>.118</td>
<td>.060</td>
<td>.546</td>
</tr>
</tbody>
</table>

P > 0.05 no statistically significant.

**p < 0.001 high statistically significant.

Table (4) shows that there is negative regression of sleep quality rate toward early cessation of hemodialysis, as early cessation of hemodialysis causes decreased sleep quality.
Table (5): Linear regression for sleep disturbance and factors that help to sleep (n=84).

<table>
<thead>
<tr>
<th>Items</th>
<th>Un standardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>-.534</td>
<td>.728</td>
<td>-.734</td>
<td>.465</td>
</tr>
<tr>
<td>Reading</td>
<td>.062</td>
<td>.072</td>
<td>.056</td>
<td>.860</td>
</tr>
<tr>
<td>Listening to Quran</td>
<td>-.015</td>
<td>.076</td>
<td>-.013</td>
<td>-.197</td>
</tr>
<tr>
<td>Taking a warm bath</td>
<td>-.079</td>
<td>.062</td>
<td>-.077</td>
<td>-1.289</td>
</tr>
<tr>
<td>Relaxing and organizing the sleeping environment</td>
<td>-.018</td>
<td>.062</td>
<td>-.019</td>
<td>-2.92</td>
</tr>
<tr>
<td>Doing exercises</td>
<td>.081</td>
<td>.091</td>
<td>.053</td>
<td>.885</td>
</tr>
<tr>
<td>Commitment to hemodialysis and taking medication regularly</td>
<td>.020</td>
<td>.074</td>
<td>.017</td>
<td>.268</td>
</tr>
<tr>
<td>Commitment to the diet</td>
<td>-.031</td>
<td>.086</td>
<td>-.022</td>
<td>-.362</td>
</tr>
<tr>
<td>Receiving treatment for sleep disorders</td>
<td>.195</td>
<td>.096</td>
<td>.121</td>
<td>2.022</td>
</tr>
</tbody>
</table>

P > 0.05 no statistically significant.
*p < 0.05 statistically significant.

Results in table (5) indicates that there is negative sleep disturbance regression toward listening to Quran, taking a warm bath, relaxing and organizing the sleeping environment and commitment to the diet, as these factors cause decrease of sleep disturbances.

Discussion

Concerning the demographic characteristics of patients undergoing hemodialysis, the present study revealed that less than half of the studied patients were recorded within age group of 50-60 years old. A possible explanation is that developing and elevation in the prevalence rate of renal failure is increased with advanced age. This finding is in agreement with Jadhav et al., (2014), they conducted a study about psychiatric morbidity, quality of life and caregiver burden in patients undergoing hemodialysis. But this is in contrast with the result of a study done by Mohammed, Mohammed and Seloma (2017), they carried out a research about nontunneled hemodialysis catheter among acute renal failure patients: nurses’ knowledge and practices at El Fayoum Insurance Hospital, their results showed that the age of less than one third of the studied patients was recorded between 26 and 30 years.
In the present study; more than half of studied subjects were males. This finding is supported with Gerasimoula et al., (2015), they conducted a research about quality of life in hemodialysis patients, while disagree with Mendonca et al., (2015), who performed a research about socio-demographic and clinical profile of older adults receiving hemodialysis, they mentioned that more than half of studied patients were female. Finding of the current study might be due to the fact that risk factors of RF such as hypertension, diabetes mellitus, smoking and others are more prevalent in men than women.

Regarding marital status, the result revealed that most of the studied subjects were married. A possible explanation is that most of patients' age ranged between 50-60 years old. This finding is similar to that of Athbi (2015), who performed a study about compliance behaviors among patients undergoing hemodialysis therapy in Holy Kerbala / Iraq, they reported that the highest percentage of the studied patients were married. Conversely, in a study carried out by Al-Jahdali (2011), which in titled a comparison of sleep disturbances and sleep apnea in patients on hemodialysis and chronic peritoneal dialysis, reported that most of the studied patients were unmarried.

In relation to residence, the present study findings revealed that most of the studied subjects were living in rural areas. This finding is consistent with a study done by Kamal et al., (2013), which in titled health-related quality of life among hemodialysis patients at El-Minia University Hospital; they mentioned that more than half of the study subjects were from rural areas. While disagrees with Endris, Fikreyesus and Amar (2018), they performed a study about prevalence of depression and associated factors among haemodialysis patients at government and private hospitals in Addis Ababa, they stated that the majority of participants resided urban areas.

In relation to educational level, the current study illustrated that more than two fifths of the studied sample were illiterate whereas more than one third of them had secondary education. This finding demonstrates that chronic renal disease is spread among different classes of people in the community. Similarly, Nasiri et al., (2013), who conducted a research about stressful factors, coping mechanisms and quality of life in hemodialysis patients, found that more than half of the studied patients were illiterate, while inconsistent with the previous result, Rengini, Aruna and Gowri (2017), who conducted a study to assess quality of sleep and sleep hygiene among patients with haemodialysis at selected hospital, reported that the little percentage of the patients were illiterate and most of them had finished high school education.

As regard to occupation, the current result revealed that most of the studied patients were unemployed. This finding might be due to the impact of chronic kidney disease on patients' physical status, physical disability due to sever bone ache and generalized pain leading to inability to work. This result is in agreement with the study of Al-Khattabi et al., (2017), which in titled factors affecting adherence of hemodialysis patients to treatment in Makkah, Saudi Arabia, they stated that most of
dialysis patients had no work. While disagree with Kaur et al., (2018), they studied cost of hemodialysis in a public sector tertiary hospital of India, found that more than half of them were employed.

Regarding patients' total knowledge score about hemodialysis and sleep disturbances presented, the results illustrated that less than two thirds of the studied sample had unsatisfactory knowledge about these topics, as more than two fifths of the studied sample were illiterate and didn't have previous information about sleep disturbances. This finding is in accordance with Narva, Norton and Boulware (2016), who studied educating patients about CKD: The path to self-management and patient-centered care, they found that around one third of the studied patients had limited knowledge regarding chronic kidney disease, its serious health complications and treatment methods.

Regarding environmental factors that increase patients' sleep disturbance, results revealed that the majority and less than two thirds of the studied sample were always complaining from change in room temperature, light and noise. This might result from living in rural areas and with large number of family members causing noise and disruption of sleep. These findings reinforced with Shen et al., (2017), they studied the SIESTA trial: a randomized study investigating the efficacy, safety, and tolerability of acupressure versus sham therapy for improving sleep quality in patients with end-stage kidney disease on hemodialysis and stated that noise, temperature, light and bedding were the most common environmental factors that cause a complaint of either insomnia or daytime fatigue.

Considering complaint of other diseases that increase patients' sleep disturbance, results of this study revealed that the majority and more than half of the patients were always suffering from anemia and hypertension respectively. As sleep disturbance might result from coldness that caused by anemia and headache secondary to high blood pressure. These results were in agreement with Wali et al., (2015), they studied risk of obstructive sleep apnea among Saudis with chronic renal failure on hemodialysis and found that sleep disorders were associated with high prevalence rates of hypertension and anemia among chronic kidney disease patients undergoing hemodialysis.

In relation to patients' sleep quality rate, the study findings illustrated that more than two thirds of the studied patients had very bad sleep quality rate. This may be due to that sleep disorders were associated with a high prevalence of chronic kidney disease. Similarly, Tosun et al., (2015) and Mr et al., (2018), who conducted a study about relationship between dialysis adequacy and sleep quality in hemodialysis patients, reported that more than two thirds of the studied patients experienced poor sleep quality. In a study performed by Anwar and Mahmud (2018), who studied quality of sleep in CKD patients on chronic hemodialysis and the effect of dialysis shift, they found that a poor quality of sleep was reported in most of the studied patients.
Pertaining to linear regression analysis for sleep quality rate and factors associated with hemodialysis, results showed that there was negative regression of sleep quality rate toward early cessation of hemodialysis, as early cessation of hemodialysis causes decreased sleep quality. The current results coincide with Giannaki et al., (2014), who conducted a study about epidemiology, impact, and treatment options of restless legs syndrome in end-stage renal disease patients: an evidence-based review, they reported that inadequate hemodialysis treatment and inefficient removal of extra uremic toxins and fluid volume from the body were associated with sleep disturbance.

Referral to the linear regression analysis for sleep disturbance and factors that help to sleep, results in this study indicated that there was negative sleep disturbance regression toward listening to Quran, taking a warm bath, relaxing and organizing the sleeping environment and commitment to the diet, as these factors cause decrease of sleep disturbances. This finding goes in line with Koch, Russcher and Nagtegaal (2011), they carried out a study about melatonin and sleep disturbances in patients with end-stage renal disease, those results showed that exercise and activity, relaxing and sleeping in a calm environment, as well avoid having too much food before bed time helped the patients in improving their sleep wake cycle.

Conclusion

According to the results of this study, it might be concluded that there was a high prevalence of sleep disturbances among hemodialysis patients. Many factors such as lifestyle, environmental and physiological, psychological factors. As well, complaints of other diseases and factors associated with dialysis increased patients’ sleep disturbance. Additionally, most of the studied patients need information about hemodialysis and sleep disturbances, so suggested guidelines were developed by the researcher according to patients’ informational needs.

Recommendations

Based on the findings of the current study, the following has been recommended:

- Developing health educational program for hemodialysis patients regarding sleep disturbances, how to avoid them and improve sleep quality.
- A simplified comprehensive Arabic booklet that includes guidelines to improve sleep quality should be provided for all hemodialysis patients.
- Investigating the effect of implementing these guidelines on enhancing sleep quality rate.
- Encouraging nurses to apply interventional methods for management of sleep disorders in hemodialysis patients.
- Developing more future researches to assess types, incidence, intensity of sleep disturbances, their various effects on health outcomes.
• The study should be conducted among a large probability sample from different geographical areas in Egypt for generalization of the results.
• Conducting long-term studies regarding effect of sleep problems management on improving patients' sleep quality.

References


Abou El-Atta, S. (2013): Factors Affecting Sleep Disturbance and Quality of Life for Patients Undergoing Hemodialysis, Published master's thesis, in nursing science, Faculty of Nursing, Mansoura University, Egypt, p.3.


Benha university hospital statistical office, (2016): Number of admitted patients to hemodialysis unit at Benha university hospital.


Sharaf, A. (2016): The Impact of Educational Interventions on Hemodialysis Patients' Adherence to Fluid and Sodium Restrictions, IOSR Journal of Nursing and Health Science (IOSR-JNHS); 5(3): 52.


