SHENMEN, NEIGUAN AND YONGQUAN ACUPUNCTURE TO IMPROVING SLEEP QUALITY OF HEMODIALYSIS PATIENTS: SYSTEMATIC REVIEW

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Abstract: Introduction: Sleep disorders are the most common problem and affected 15-30% Chronic Renal Failure patients with hemodialysis. Interventions to improve the quality of sleep were currently needed. Acupressure is one of intervention that can apply to improve sleep quality by releasing the neurological mediators to physical process, relaxes the muscles and encourages the body to relax, so the patient fall easily in sleeping conditions. Objective: This aims of the studies are evaluated the effectiveness of Shenmen, Neiguan and Yongquan acupoints to improving sleep quality of patient with hemodialysis. Method: Using electronic database including Scopus, ScienceDirect, ProQuest, SpringerLink, EBSCOhost and WilleyOnline with limited year used 2002-2017. Combining acupressure, sleep disorder, insomnia, sleep quality and hemodialysis as the search keywords 94 articles retrieved. Using matching keyword 15 journals determined to be systematic review. Results: Shenmen, Neiguan and Yongquan acupoints was effective in improving sleep quality of patient with Hemodialysis. Discussion: Shenmen, Neiguan and Yongquan acupoints can repair the Qi flows, increase and releasing neurotransmitter, neurohormon, and serotonin, this effect can reduce perceptions of sleep disorders, relax the body's organs and increasing the desire of sleep. Conclusion: Shenmen, Neiguan and Yongquan effective as intervention to improving sleep quality of patient with hemodialysis.

1 BACKGROUND

End stage renal disease (ESRD) is one of the most serious health problems. The increased prevalence of ESRD has become a global threat and epidemic, this was because hemodialysis gave greatly affects to health, lifestyle and welfare of patients. Technological advances to development of current hemodialysis therapy have been able to increase life expectancy of patients. Hemodialysis is a costly, time-consuming therapy, the procedure should be done in several times a week and forever, and hemodialysis provides a variety of side effects that are very detrimental to health (Hogan et al., 2017). Nurse must be sensitive in assessment, planning, intervention and patient education, those are urgently needed and important to deal with patients receiving hemodialysis therapy with all its complaints (Neyhart et al., 2010). Sleep disturbance is one of the most common complaints in hemodialysis patients.

Several studies have reported that sleep disturbance is a major comorbid problem and is thought to affect up to 15-30% of male adults and up to 5-15% of female adults (Peppard et al., 2013). This condition is characterized by recurrent obstruction of the upper airway during sleep and often causes oxygen desaturation, resulting in frequent waking, fragmented sleeping and excessive daytime sleepiness (Fonseca et al., 2016). Acupressure is one of the interventions developed to overcome this condition.

Acupressure is a method of treatment that works to improve sleep by releasing a neurological mediator that regulates physical processes, encouraging the body to relax and improve sleep quality (Arab et al., 2016). Massage on certain acupoints, such as in shenmen, neiguan and youngquan are effective in improving sleep quality...
and quality of life in intensive care (Chen et al., 2012). In addition other research teams reported that there is a positive role of acupressure at the wrist and foot shenmen points in improving patient sleep quality (Nasiri, et al, 2011). The acupoint described above inspired researchers to collect evidence through systematic reviews of effectiveness at the shenmen, neiguan and youngquan acupoints in improving the patient’s sleep quality with hemodialysis.

2 METHOD

The systematic review source searches uses electronic databases includes: Scopus, Science Direct, Proquest, Springer Link, Ebso Host and Willey Online with limited year used 2002-2017 (15 years). Source search using the appropriate keywords that are contained in PICOT with boolean logic method, as shown in figure 1. Based on the search results, 94 journals retrieved, then 21 journals were selected based on matching keyword and determined 15 journals to do systematic review.

3 RESULTS

Research Design
In this systematic review, mostly study design used Randomized Controlled Trial (14 article), and descriptive observational (1 article). The most widely used research design is the Randomized Controlled Trial with the largest number of samples of 108 respondents.

Characteristics of Respondents
The number of samples ranged from 24 to 108 patients. In 12 journals the respondents were ESRD patients with hemodialysis, 2 journals of elderly patients undergoing intensive care, and 1 journal of patients with long-term care, who have experienced sleep disturbance or insomnia. The measuring tools to evaluate the quality of sleep is the Pittsburgh Sleep Quality Index (PSQI) that used in 12 journals and Stanford Sleepiness Scale (SSS), Athens Insomnia Scale (AIS-T), Insomnia Severity Index (ISI) eachother 1 journal.

<table>
<thead>
<tr>
<th>Keyword</th>
<th>Value</th>
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<tbody>
<tr>
<td>P</td>
<td>Hemodialysis Patient with Sleep disorder or insomnia</td>
</tr>
<tr>
<td>I</td>
<td>Acupressure</td>
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<tr>
<td>C</td>
<td>-</td>
</tr>
<tr>
<td>O</td>
<td>Sleep Quality</td>
</tr>
<tr>
<td>T</td>
<td>2012-2017</td>
</tr>
</tbody>
</table>

Source search using Boolean Logic in electronic database includes: Scopus, Science Direct, ProQuest, Springer Link, EBSCOhost dan Willey Online

Figure 1: PICOT strategy and Boolean logic source search on electronic database

Acupressure Therapy
Acupressure is a traditional treatment technique from China, a non-invasive action that uses pressure and massage at the acupoints. Acupressure is an effective intervention to improve sleep quality in patients with hemodialysis who experience sleep disorders. Acupoint acupressure that is often used is the point of Shennen (HT-7), Neiguan and Yongquan (K11) as shown in table 2 are effective acupoint and in several studies that used a combination of acupoint points above gave a maximum results to increase of respondents’ sleep quality.

Clinical Effects in Sleep Quality Improvement
Based from the result studies to Improved sleep quality that found in 14 RCT studies and 1 observational study in this review, overall using a combination of acupoint (Shenmen, Neiguan and Yongquan) in improving patient sleep quality, the acupoint used consisted of at least 2 and a maximum of 4 acupoint. The length of time for intervention.
was also relatively, in 11 intervention studies in the control group performed for 4 weeks, 2 studies for 8 weeks, and 1 study each 3 weeks and on the second day was treated intensive care room. Most of the results showed a significant value of the effectiveness of acupressure to improve sleep quality of hemodialysis patients who experience sleep disorders. There are four instruments used to measure sleep quality based on 15 studies reviewed: Pittsburgh Sleep Quality Index (PSQI), Stanford Sleepiness Scale (SSS), Athens Insomnia Scale (AIS-T) and Insomnia Severity Index (ISI).

4 DISCUSSION

Acupressure is part of complementary, non-invasive therapy that low risk and hasn’t side effects to the patient (Shen et al., 2017). Acupressure works by stimulating the balancing of life energy (qi), improve of health and comfort (Chen et al., 2012). In traditional Chinese medicine theory, organ function depends on the flow of qi energy channel. This channel is called a "meridian". The Meridian connects between the internal and external parts of the body. The qi transmission is believed to sustain all organs in the body of the living creature and its bloodstream, thus allowing the body to function as a harmonious whole.

Acupoint is the point that located along the meridian line that serves to saved qi, react to pain or illness, and as a point of treatment. Acupressure practitioners use traditional Chinese medicine theory to determine where the meridian is and where the organ is experiencing pain. Then they use acupuncture points to determine the acupressure point and apply soft pressure applied manually with the fingertips to this acupuncture point, thus stimulating the flow of qi through the meridians and preventing / treating the disease (Ma, 2005; Hwang, 2004). In ancient Chinese medical literature identify more than 54 acupoint points associated with sleep disorders.

The manual acupressure technique consists of a manual gesture to push, rub, squeeze, squeeze, massage, or hold, and hold tightly. With this, acupressure produces physiological effects, reduces discomfort, improves feelings of well-being, and improves sleep (Sun, et al, 2010). Acupressure also improves blood circulation and qi, harmony of yin and yang, and secretion of neurotransmitters, thus maintaining the normal functioning of the human body and providing comfort. All acupressure effects mentioned above improve sleep quality.

Acupoints can improve the flow of qi and increase the release of neuro-transmitters and neurohormones, and thus decrease perception of sleep disorders. It may also increase the release of serotonin, make relaxes the body and improves sleep. Based on several studies that have been reviewed a significant difference in sleep quality score between acupressure group, false acupressure and control after intervention in PSQI global score (p <0.001).

Some studies involve acupressure with massage given to patients 3 times a week for four weeks statistically significant (p <0.001) in improving sleep quality. Acupressure is thought to produce a therapeutic effect and reduce the levels of cortisol, norepinephrine and epinephrine by stimulating sympathy of the nervous system, thereby improving the patient's sleep quality and increasing energy and decreasing fatigue based on physical properties and psychological relaxation it provides (Unal & Balci Akpinar, 2016). Thus some evidence has shown that acupressure is an effective therapy for improving sleep quality in sleep-disordered hemodialysis patients.

Implications For Nursing Practices

Acupressure as the development of complementary therapy is very relevant to be chosen as an alternative intervention that can be applied by nurses to improve sleep quality in hemodialysis patients who experience sleep disorders. The use of a good combination of acupoint especially Shenmen, Neiguan and Yongquan or consisting of two to four points shows significant results in improved sleep quality in hemodialysis patients, patients with intensive care and long-term care. The use of acupressure as part of the intervention by the nurse allows the public to increase interest in the health services provided by the nurse. This very profitable because acupressure is a simple therapy, giving comfort, improving interpersonal relationships (nurse-patient), minimal side effects and efficient in financing.

Recommendation

Recommendations that can be submitted based on the results of systematic review for the profession of nursing:
Table 1: Shenmen, Neiguan, and Yongquan acupoint to improve quality of sleep ESRD patient

<table>
<thead>
<tr>
<th>Author</th>
<th>Acupoint</th>
<th>Shenmen</th>
<th>Neiguan</th>
<th>Yongquan</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Tsay, Rong and Lin, 2003)</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>(Nasiri, et al, 2011)</td>
<td>significant effective to improve quality of sleep ESRD patient</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>(Chen et al., 2012)</td>
<td>significant effective to improve quality of sleep hemodialysis patient</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>(Shariati et al, 2012)</td>
<td>significant effective to improve quality of sleep in insomnia patient</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Shen et al., 2017)</td>
<td>Combination with Li-4 and Sp-6 acupoint significant effective to improve quality of sleep hemodialysis patient</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>((Lai et al., 2017)</td>
<td>No significant statistically but score sleep disorder in intervention group lower than control group</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>(Arab et al., 2016)</td>
<td>significant effective to improve quality of sleep in adult insomnia patient</td>
<td>✓</td>
<td></td>
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<tr>
<td>(Sun et al., 2010)</td>
<td>significant effective to improve quality of sleep hemodialysis patient</td>
<td>✓</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>(Zou et al., 2015)</td>
<td>significant effective to improve quality of sleep hemodialysis patient</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Wu, et al, 2014)</td>
<td>significant effective to improve quality of sleep hemodialysis patient</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Thin, et al, 2014)</td>
<td>significant effective to improve quality of sleep hemodialysis patient</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Yeung et al., 2017)</td>
<td>No significant statistically but score sleep disorder in intervention group lower than control group</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Zheng, et al, 2014)</td>
<td>significant effective to improve quality of sleep hemodialysis in adult patient with insomnia</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Zheng et al., 2014)</td>
<td>Combination Tatxi acupoint significant effective to improve quality of sleep in Hipertension patient with insomnia</td>
<td>✓</td>
<td></td>
<td></td>
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<tr>
<td>(Reza et al., 2010)</td>
<td>Combination with Sp-6 significant effective to improve quality of sleep in adult patient with insomnia</td>
<td>✓</td>
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</tbody>
</table>
1. Patients with hemodialysis should be equipped with modules or simple guidelines on the side effects of hemodialysis and its medical and complementary management. In order for patients to have a choice of solutions to various complaints of health problems they experience.

2. Complementary therapy (acupressure) in Shenmen, Neiguan and Yongquan or other acupoints that can be applied by a nurse should be a policy consideration as one form of nursing interventions that can be applied in the room.

3. It is necessary to increase the knowledge of nurses in the development of complementary therapies as alternative therapy and medical therapy support through training programs, seminars, workshops and nursing research.

**Limitations**

The references used in this systematic review have not been tested elsewhere or have been conducted in different places. The environment and perceptions of each individual whether clients, family and nurses greatly influence the success of the therapy given.

**REFERENCES**


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**5 CONCLUSION**

This systematic review aims to find evidence of the effectiveness acupoints of acupressure in improving sleep quality of patients undergoing hemodialysis. The findings suggest that Shenmen, Neiguan and Yongquan or combination of them and another acupoints has been shown to increase sleep quality in patients with hemodialysis in almost all previous studies.

Small sample size, short duration of intervention, and the absence of trials in different areas in being a limitation in evaluating the extent to which acupressure affects patient sleep quality. Further research is needed on the effectiveness of acupressure in improving sleep quality in larger sample groups and duration longer intervention.


