Relationship Between Self-perception Burden and Sleep in Patients with Chronic Heart Failure in China

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Keywords: Chronic heart failure, Self-perception burden, Sleep.

Introduction
Chronic heart failure is a progressive disease, which is widely prevalent worldwide. The prevalence and mortality of chronic heart failure are increasing year after year. It has been bringing a heavy economic burden\cite{1}, which can make the patient have the thought of that they are the burden of others. This is the of the burden of self feeling, which we named SPB for short. The existence of SPB could cause depression, anxiety, guilt, self remorse and other negative emotions\cite{2}. The patients frequently suffer from physical and mental symptoms such as anxiety and dyspnea, which seriously affect the quality of sleep and lead to sleep disorders. Studies have find that sleep disorder is one of the main symptoms of chronic heart failure, the incidence of which is as high as 70\%\cite{3}, and the quality of sleep will affect the prognosis of patients with \cite{4-5}. However, SPB and sleep status in CHF patients have not been reported. In this paper, we take CHF patients as the object of study, and explore the relationship between SPB and sleep quality.

Methods

Participants and Data Collection
The study had take the technique of the Target sampling method, selected CHF patients who were hospitalized in Department of cardiology from October 2017 to March 2018, and their cardiac function was II-IV. It had excluded acute stage of severe heart failure, important organs and diseases such as brain, liver and kidney, mental disorders and cognitive dysfunction, sleep behavior disorder and apnea syndrome. According to SPB score, they were divided into no SPB group, mild SPB group, moderate SPB group and severe SPB group. There were 12 cases without SPB, age 36~71 (54.38 ± 4.39) years, 4 males and 8 women, CHF course \((7.52 ± 1.53)\) months, 30 cases in mild SPB group, 41~73 (61.47 ± 5.43) years of age, male 17 cases, female 13 cases, CHF cases, age SPB years, males and females. There were 15 cases in severe SPB group, 42~76 \((67.50 ± 5.44)\) years old, 9 males and 6 females, and the duration of CHF was \((110.53 ± 7.54)\) months.

Sociodemographic and Clinical Variables
Participants completed a demographic profile which had the information about (a) gender; (b) age; (c) employed status; (d) marital status; (e) type of heart failure; (f)disease duration; (g)primary disease ;(h) complications
Instruments

Self-Perceived Burden Scale (SPBS)

The scale consists of 10 items. Each of the item takes the Likert5 grade scoring method. From “never” to “always”, 1 points, 2 points, 3 points, 4 points and 5 points are counted, of which item 8 is the reverse score, and the score of each item is added to the total score of the self feeling burden, the higher the score is, the heavier the sense of self feeling is heavier. The total score of the scale was 10~50 points, and <20 was divided into no obvious self feeling burden; 20~29 was a mild self feeling burden; 30~39 was a moderate self feeling burden, and more than 40 was a heavy self feeling burden.

Pittsburgh Sleep Quality Index (PSQI)

It is suitable for evaluating the patient's sleep condition. In 1996, the scale was translated into Chinese by Liu Xianchen and [7] et al. It has been applied to many more times in China, and has good reliability and validity. The scale consists of 18 self-evaluation items, including 7 items: sleep quality, sleep time, sleep time, sleep efficiency, sleep disorder, hypnotic drug, and daytime function. Each item was calculated according to 0~3 points. The total score of each component was PSQI total score. The higher the score, the worse the sleep quality was.

Data Collection

The questionnaire was conducted by the special person, and the patient was asked to answer the questions in person with a unified instruction. A total of 120 questionnaires were distributed, and 110 were recovered, with an effective rate of 91.67%.

Data Analyses

The SPSS22.0 statistics software was used for the data process. The measurement data of normal distribution were expressed in ( ± s). The variance analysis was used in the group. The count data were expressed in phase logarithm, and the x² test was used for the comparison between groups. P <0.05 indicated that the difference was statistically significant.

Results

The sleep related situation of CHF patients in each group was compared: in Table 1. With the aggravation of SPB, the number of sleep time and arousal increased gradually, while the time of sleep gradually shortened. The difference was statistically significant (P<0.05).

<table>
<thead>
<tr>
<th>Degree</th>
<th>N</th>
<th>Time to fall asleep(min)</th>
<th>Sleep time(min)</th>
<th>Awakening time(n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>None to Little Burden</td>
<td>12</td>
<td>20.79±3.04</td>
<td>389±30.24</td>
<td>1.4±0.3</td>
</tr>
<tr>
<td>Mild to Moderate Burden</td>
<td>30</td>
<td>38.5±2.49               ▽</td>
<td>344±40.23       ▽</td>
<td>3.1±0.75         ▽</td>
</tr>
<tr>
<td>Moderate to Severe Burden</td>
<td>53</td>
<td>42.5±4.5                 ▽</td>
<td>300±28.99       ▽</td>
<td>3.3±1.1          ▽</td>
</tr>
<tr>
<td>Severe Burden</td>
<td>15</td>
<td>56±7.82                 ▽</td>
<td>272±50.2        ▽</td>
<td>3.7±0.45         ▽</td>
</tr>
</tbody>
</table>
Compared with non SPB group ▽P <0.05; compared with the mild SPB group ▼P <0.05; compared with moderate SPB group ▲P <0.05.

PSQI comparison of CHF patients in each group: in Table 2. The difference of sleep quality, time of sleep, sleep time, sleep efficiency, sleep disorder, hypnotic drugs and daytime dysfunction were statistically significant (P <0.05).

Table 2. PSQI comparison of CHF patients in each group.

<table>
<thead>
<tr>
<th>Degree</th>
<th>n</th>
<th>Sleep quality</th>
<th>Time to fall</th>
<th>Sleep time</th>
<th>Sleep efficiency</th>
<th>Sleep disorder</th>
<th>Hypnotic drugs</th>
<th>Daytime dysfunction</th>
<th>PSQI total score</th>
</tr>
</thead>
<tbody>
<tr>
<td>None to Little Burden</td>
<td>1</td>
<td>1.10±0.2</td>
<td>0.98±0.9</td>
<td>0.90±0.8</td>
<td>0.83±0.7</td>
<td>0.26±0.2</td>
<td>0.94±0.7</td>
<td>6.9±1.7</td>
<td></td>
</tr>
<tr>
<td>Little Burden</td>
<td>2</td>
<td>1.2±0.3</td>
<td>0.31±0.3</td>
<td>0.79±0.8</td>
<td>1.2±0.8</td>
<td>0.33±0.8</td>
<td>1.5±0.4</td>
<td>7.6±1.0</td>
<td></td>
</tr>
<tr>
<td>Mild to Moderate Burden</td>
<td>3</td>
<td>1.3±0.4</td>
<td>1.1±0.1</td>
<td>0.79±0.8</td>
<td>1.2±0.8</td>
<td>0.33±0.8</td>
<td>1.5±0.4</td>
<td>7.6±1.0</td>
<td></td>
</tr>
<tr>
<td>Moderate to Severe Burden</td>
<td>4</td>
<td>1.5±0.6</td>
<td>2.21±0.6</td>
<td>1.57±0.6</td>
<td>0.63±0.6</td>
<td>1.38±0.6</td>
<td>0.60±0.6</td>
<td>1.8±0.3</td>
<td></td>
</tr>
<tr>
<td>Severe Burden</td>
<td>5</td>
<td>1.8±0.8</td>
<td>2.56±0.8</td>
<td>2.01±0.8</td>
<td>0.48±0.4</td>
<td>1.81±0.8</td>
<td>0.77±0.8</td>
<td>2.0±0.6</td>
<td></td>
</tr>
</tbody>
</table>

Compared with non SPB group ▽P <0.05; compared with the mild SPB group ▼P <0.05; compared with moderate SPB group ▲P <0.05.

Analysis of the correlation between SPB and PSQI in CHF patients: in Table 3. With the increase of SPB, the PSQI score is higher, the sleep quality is worse. The difference was statistically significant (P <0.05).

Table 3. Analysis of the correlation between SPB and PSQI in CHF patients.

<table>
<thead>
<tr>
<th>Degree</th>
<th>PSQI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>r</td>
</tr>
<tr>
<td>None to Little Burden</td>
<td>0.23</td>
</tr>
<tr>
<td>Mild to Moderate Burden</td>
<td>0.42</td>
</tr>
<tr>
<td>Moderate to Severe Burden</td>
<td>0.48</td>
</tr>
<tr>
<td>Severe Burden</td>
<td>0.57</td>
</tr>
</tbody>
</table>
Discussion

This study found that the prevalence of self feeling was 89.1% in CHF patients, and the incidence was as high as 89.1%, with moderate SPB, consistent with the [8-10] results of Yin Li, Li Xue and Liu Zhaoying in China, but higher than the self feeling burden of foreign Suri and so on [11]. It may be related to cultural background, disease types, sample size, inclusion criteria and exclusion criteria. Medical staff should pay close attention to patients’ self perceived burden, timely discover their bad mood and give psychological counseling.

The burden of self feeling is the most important source of social stress that CHF patients feel. It can make patients have emotional reactions such as depression, anxiety, guilt, depression, self blame, negative and other emotional reactions, and affect the quality of life, treatment decision and treatment effect [12]. Continuous development can also lead to more serious physical and mental disorders. It is found that the prevalence of SPB in CHF patients is much higher than that in anxiety and depression, and SPB is an important factor influencing sleep quality. According to the literature[13-15], CHF patients often suffer from sleep problems, interfering with daily life, irritability, depression, fatigue, concentration of attention, cognitive impairment and social isolation. Long and repeated sleep disorders seriously affect the treatment and rehabilitation of the disease, and reduce the quality of life. The results of the study are in agreement with the results of this study. But the quality of sleep is still quite different when the disease, ward environment and medication are the same. This may be the result of psychological effect.

The correlation analysis showed that the heavier the SPB, the greater the correlation coefficient between SPB and sleep time, sleep time, arousal times and PSQI. It suggests that negative emotion is positively correlated with sleep quality. Doctors and nurses should make early prevention, early detection and early treatment, and improve their sleep quality from the perspective of improving patients’ SPB.

Acknowledgement

This research was financially supported by Jilin Municipal Science and Technology Bureau project(ID:201737122). Yan Song is the Corresponding author.

References


