Original Article
Impact of individualized health management on self-perceived burden, fatigue and negative emotions in angina patients

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Abstract: To explore the effect of individualized health management on angina patients, a total of 98 patients with angina pectoris admitted to our hospital from January 2017 to June 2017 were enrolled. 49 patients were randomly selected as routine group under the guidance of conventional management mode nursing intervention and the other 49 patients were included as individualized group, who received individual health management mode-guided nursing intervention. The patients received self-perceived burden scale, fatigue rating scale, anxiety self-rating scale, and depression self-rating scale questionnaires delivered by the trained investigators at the time of enrollment and after 3 months, respectively. Self-perceived burden, fatigue, anxiety, and depression were compared between the two groups. There were no statistical differences in economic burden, emotional burden, physical burden, scores of each factor of fatigue assessment scale, anxiety self-rating scale, and self-rating depression scale between two groups (P > 0.05). After 3 months’ intervention, scores of economic burden, emotional burden, physical burden, fatigue assessment scale, anxiety self-rating scale, and self-rating depression scale in both groups were decreased, while lower scores were found in the patients of individualized group than those in the control group at. Meanwhile, the scores of fatigue severity scale, fatigue environment specific scale, fatigue outcome scale, and the effect of fatigue on rest and sleep scale in patients of the individualization group decreased more obviously than those of the control. Individualized health management significantly reduced self-perceived burden, attenuated fatigue, and improved negative emotions on patients with angina pectoris, which may offer basis in further clinical practice.

Keywords: Angina pectoris, individualized health management, self-perceived burden, negative emotion, nursing quality

Introduction

Angina pectoris is one of the most common cardiovascular diseases. The prevalence has been growing, due to the change of people’s lifestyle and eating habits [1, 2]. At present, most patients with angina pectoris receive guidance and treatment in cardiology clinics [3, 4]. Since most patients have no medical background, relevant expertise concerning angina patients is often insufficient [5, 6]. Therefore, the intervention of cardiologists plays a decisive role for the management of angina patients. To this end, academics and nurses keep exploring ways to optimize angina management. In recent years, individualized health management becomes widely used in various chronic diseases, such as maintenance hemodialysis and rectal cancer, and obtains satisfactory results [7, 8]. In this study, we randomly divided 98 patients with angina pectoris from January to June 2017, in order to explore the effect of individualized health management on angina patients.

Materials and methods

Research objects

A total of 98 patients with angina pectoris undergoing cardiovascular medical treatment from January 2017 to June 2017 in our hospital were enrolled in this study. Inclusion criteria:
Comply with the International Classification of Diseases Code [ICD-10] on the diagnostic criteria of “angina pectoris”;② the patients were firstly diagnosed in our hospital; ③ the subjects had clear awareness and were able to communicate effectively with the investigators; ④ the subjects can understand the purpose of this study and the intervention content; ⑤ patients volunteered to participate in this study and signed informed consent. Exclusion criteria: ① Other heart diseases, such as congenital heart disease and rheumatic heart disease; ② Mental illness, such as schizophrenia and depression; ③ Taking antidepressants or anti-anxiety drugs that may affect the mood. The basic clinical data were comparable between two groups (P > 0.05, Table 1). 49 patients were randomly selected as routine group under the guidance of conventional management mode nursing intervention and the other 49 patients were included as individualized group, who received individual health management mode-guided nursing intervention. The study was reviewed and approved by Ethics Committee of our hospital and all patients participated in the study signed the informed consent.

Methods

Survey methods and tools: The subjects received self-perceived burden scale, fatigue rating scale, anxiety self-rating scale, and depression self-rating scale questionnaires under the unified guidance by the trained investigators at entering the group and after 3 months. The questionnaire contained the following questions: (1) Basic information: gender, age, and course of disease; (2) Self-perceived burden scale: The scale was composed of three dimension-based scale systems (“never, occasionally, sometimes, often, always” scored as 1 to 5 points), including economic burden, emotional burden, and physical burden. 20 points were designated as the dividing line of self-perceived burden [9]; (3) Fatigue assessing scale: The scale consisted of four factors (fatigue severity scale factor 1, fatigue environment specific scale factor 2, fatigue outcome scale factor 3, and the effect of fatigue on rest and sleep scale factor 4). They were used to assess the degree of fatigue, the impact of fatigue to specific environmental sensitivity, fatigue result, and the consequences of fatigue on rest and sleep. The score was obtained by the arithmetic mean value after simple sum of factors contained in their entries [10]. (4) Anxiety: The self-rating anxiety scale was used for assessment. The higher the standard score of anxiety self-rating scale, the more serious the anxiety situation was [11]. (5) Depression: The self-rating depression scale was adopted to assess the depression. The higher the standard score of depression self-rating scale, the more severe the depression was [11].

Nursing methods: The subjects in the conventional group received exercise therapy, drug use methods and precautions under the guidance of conventional management methods of nursing interventions. (1) Construction of individualized health management team: a chief nurse, a head of the nurse, and two cardiologists (one chief physician is responsible for the diagnosis and treatment of the disease, one attending physician is responsible for dietary guidance and sports intervention). The duty contained investigating the self-perceived burden, fatigue, negative emotions, nurse mission education content training, micro video content settings and recording, and WeChat communication. (2) Professional training of members: The group leader trained members via WeChat group, department lectures, etc. The training duration was 18 hours. Meanwhile, the leader guided the individual member to learn about angina pectoris theoretical knowledge, individualized health management methods, angina home management; (3) The specific implementation plan: the formation of individual health management program with the participation of patients and their families: ① Establishing a WeChat group including the patients and their families, to perform occasional health education, special education about angina pectoris, individualized health management, emotion management, and sports exercise; ② Setting

Table 1. Clinical information comparison (X ± s)

<table>
<thead>
<tr>
<th>Group</th>
<th>Cases</th>
<th>Male/female</th>
<th>Age (year)</th>
<th>Course of disease (month)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>49</td>
<td>28/21</td>
<td>52.68±6.84</td>
<td>3.46±1.05</td>
</tr>
<tr>
<td>Individualized group</td>
<td>49</td>
<td>29/20</td>
<td>53.47±6.29</td>
<td>3.52±0.97</td>
</tr>
<tr>
<td>T/χ² value</td>
<td>0.042</td>
<td>0.595</td>
<td>0.294</td>
<td>0.294</td>
</tr>
<tr>
<td>P value</td>
<td>0.838</td>
<td>0.405</td>
<td>0.042</td>
<td>0.294</td>
</tr>
</tbody>
</table>
Individualized health management on angina

Table 2. Self-perceived burden comparison (X ± s, score)

<table>
<thead>
<tr>
<th>Group</th>
<th>Cases</th>
<th>Economic burden</th>
<th>Emotional burden</th>
<th>Physical burden</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Enrollment</td>
<td>3 months' intervention</td>
<td>Enrollment</td>
</tr>
<tr>
<td>Individualized group</td>
<td>49</td>
<td>3.52±0.35</td>
<td>2.02±0.30</td>
<td>★ 15.62±0.68</td>
</tr>
<tr>
<td>Conventional group</td>
<td>49</td>
<td>3.48±0.33</td>
<td>2.88±0.28</td>
<td>★ 15.57±0.61</td>
</tr>
<tr>
<td>T value</td>
<td>0.582</td>
<td>14.670</td>
<td>0.383</td>
<td>16.680</td>
</tr>
<tr>
<td>P value</td>
<td>0.418</td>
<td>0.000</td>
<td>0.627</td>
<td>0.000</td>
</tr>
</tbody>
</table>

★P < 0.05, compared with before enrollment.

Figure 1. Self-perceived burden comparison.

We then evaluate the self-rating anxiety and depression scale between two groups. As shown in Table 3 and Figure 2, there were no statistical differences of fatigue assessment scales between two groups (P > 0.05). After 3 months’ intervention, the scores on fatigue assessment scale were decreased in both group compared to those before enrollment (P < 0.05), while values were even reduced in patients from individualized group, compared control group, indicating the intervention improved the manifestation of the disease.

Discussion

The rapid development of information technology has brought new approaches to health care services [12, 13]. At present, WeChat has been employed in almost every aspect of life. WeChat has become the main force of the “new generation” by its advantages of timeliness, convenience, diversification, and safety.
Individualized health management on angina

### Table 3. Fatigue assessing scale comparison (\( \bar{X} \pm s, \) score)

<table>
<thead>
<tr>
<th>Group</th>
<th>Cases</th>
<th>Enrollment (3 months' intervention)</th>
<th>3 months' intervention</th>
<th>Enrollment (3 months' intervention)</th>
<th>3 months' intervention</th>
<th>Enrollment (3 months' intervention)</th>
<th>3 months' intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individualized group</td>
<td>49</td>
<td>4.78±0.32</td>
<td>2.02±0.34*</td>
<td>5.61±0.70</td>
<td>2.15±0.69*</td>
<td>4.11±0.44</td>
<td>2.01±0.39*</td>
</tr>
<tr>
<td>Conventional group</td>
<td>49</td>
<td>4.79±0.36</td>
<td>3.38±0.31*</td>
<td>5.63±0.82</td>
<td>2.96±0.61*</td>
<td>4.19±0.45</td>
<td>2.97±0.46*</td>
</tr>
<tr>
<td>T value</td>
<td></td>
<td>0.145</td>
<td>0.130</td>
<td>0.890</td>
<td>0.110</td>
<td>0.427</td>
<td>0.000</td>
</tr>
<tr>
<td>P value</td>
<td></td>
<td>0.855</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
</tr>
</tbody>
</table>

*P < 0.05, compared with before enrollment.

**Figure 2.** Fatigue assessing scale comparison.

now widely used in the continuation nursing for major diseases [14, 15]. Previous evidence showed WeChat presented as the media of health education and physical examination extension of young patients with acute myocardial infarction [16, 17]. WeChat applied in the intervention of various types of chronic disease is characterized as simple, fast response, low cost, and no place restriction. However, due to the specificity of each disease, the full use of WeChat in medical nurse services requires to be further investigated.

Up to now, no personalized health management model based on WeChat media has been adopted to provide nursing interventions for angina patients. Therefore, we for the first time applied WeChat platform for patients with angina pectoris to perform individualized health management from January 2017 to June 2017 in our hospital. Our results showed that 3 months' intervention improved various indicators of patients, including economic burden, emotional burden, physical burden, fatigue assessment scale, self-rating anxiety scale, and self-rating depression scale. Jing Wang [18] selected 127 patients who received maintenance hemodialysis treatment (Autologous arteriovenous fistula for the dialysis channel) in Beijing Chaoyang Hospital affiliated Capital Medical University from February 2012 to January 2015 to compare dialysis interval weight gain, patient sensory and blood pressure before and after individualized health management intervention. The results demonstrated that dialysis weight gain, thirst, salivary resting flow rate, taste sensitivity, and blood pressure control were dramatically improved after intervention. Thus, Jing Wang concluded that the application of individualized health management to the patients with maintenance hemodialysis can favor the compliance of water and sodium control behaviors and effectively optimize patient’s autonomic feeling and blood pressure control. The management of angina pectoris may be related to the following factors: The authors set up an individualized health management team to provide professional guidance to the angina patients through training the team members’ nursing theory and skills. The authors chose WeChat as a communication medium for individual health management due to its extensive use [19, 20]. This study provides WeChat video education, such as emotional management and exercise training. Moreover, it supervises and manages the implementation of care measures at specific times and provides one-on-one instruction through WeChat to ensure that all medical interventions are put in place. At the same time, angina patients can be counseled through the WeChat group for free consultation and personalized health management mode guidance on difficult problems in the nursing process, which can greatly reduce the burden of self-feeling and improve the negative emotions via the application of emotional management such as general muscle relaxation training. However, this study only focused on subjective feeling index. Further improvement is still needed to observe the application of individualized health management on the angina patients.
In conclusion, individualized health management significantly reduced self-perceived burden, attenuated fatigue, and improved negative emotions on patients with angina pectoris, which highlights the clinical benefits in the future therapy of angina.

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Disclosure of conflict of interest

None.

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References


Table 4. Self-rating anxiety and depression scale comparison (X ± s, score)

<table>
<thead>
<tr>
<th>Group</th>
<th>Cases</th>
<th>Self-rating anxiety score</th>
<th>Self-rating depression score</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Enrollment</td>
<td>3 months’ intervention</td>
</tr>
<tr>
<td>Individualized group</td>
<td>49</td>
<td>58.47±2.64</td>
<td>41.15±1.66* (★)</td>
</tr>
<tr>
<td>Conventional group</td>
<td>49</td>
<td>58.12±2.48</td>
<td>38.23±1.58* (★)</td>
</tr>
</tbody>
</table>

T value: 0.676, 8.919; P value: 0.324, 0.000

★P < 0.05, compared with before enrollment.

Figure 3. Self-rating anxiety and depression scale comparison.

In conclusion, individualized health management significantly reduced self-perceived burden, attenuated fatigue, and improved negative emotions on patients with angina pectoris, which highlights the clinical benefits in the future therapy of angina.
Individualized health management on angina


