Study of psychological state and stress response during the perioperative period in elderly patients after ERCP based on SCL-90 and comprehensive nursing care

Li Xiao1*, Yanping Li2*, Donghua Huang3

1The Nursing Department, 2The Ophthalmology of Chinese Medicine, 3The First Department of Cardiovascular Medicine, Ganzhou People’s Hospital, Ganzhou 341000, Jiangxi Province, China. *Equal contributors and co-first authors.

Received June 30, 2020; Accepted September 27, 2020; Epub November 15, 2020; Published November 30, 2020

Abstract: Objective: To analyze the effects of comprehensive nursing intervention with the symptom checklist 90 (SCL-90) in the stress response and psychological state of elderly patients receiving ERCP during the perioperative period. Methods: A total of 100 elderly patients undergoing ERCP in our hospital from June 2016 to June 2017 were selected and divided into the observation group (n = 50, comprehensive nursing care) and the control group (n = 50, conventional nursing care) according to a random number table. The changes in SCL-90 scores, psychological state and hemodynamic stress responses were compared, and nursing satisfaction, postoperative recovery and complication rate of the two groups were compared before and after intervention. The incidence of complications was compared between the two groups, after 6 months of follow-up. Results: The stress response of the control group was slightly lower than that in the observation group at different observation periods after intervention (P < 0.05). Before intervention, there were no significant differences in the HAMA scores, HAMD scores and SLC-90 scores between the two groups (P > 0.05). After intervention, the HAMA scores, HAMD scores and SLC-90 scores of the observation group were significantly lower than those of the control group (P < 0.05). The observation group had superior metrics compared to the control group in terms of postoperative recovery and hemodynamic indices (P < 0.05). The observation group had remarkably higher nursing satisfaction, and significantly shorter anal exhaust time, first time out of bed and length of stay, as well as lower incidence of complications than the control group (P < 0.05). Conclusion: For elderly patients receiving ERCP during the perioperative period, comprehensive nursing intervention can effectively improve the SCL-90 scores, stress responses and psychological states, promote recovery, reduce complications, and elevate the satisfaction of patients and their families.

Keywords: ERCP, comprehensive nursing care, SCL-90, psychological state, stress response

Introduction

Endoscopic retrograde cholangiopancreatography (ERCP), which is the gold standard for the diagnosis of multiple benign and malignant obstructive jaundice, bile duct stones and pancreatitis, can clearly diagnose pancreatic and liver diseases [1]. However, the application of ERCP in elderly patients can increase the risk of surgery, as some elderly patients suffer from complications. Therefore, in order to reduce the risk of surgery and ensure the safety of surgery, an appropriate nursing care model is very crucial [2-4]. In recent years, with the rapid development of medical technologies, there are rising requirements for perioperative nursing intervention, and perioperative nursing has a certain correlation with the success of surgery, and different nursing care models have different influence on patients [5-7]. Conventional nursing care lacks comprehensiveness and is unable to meet the nursing needs of patients [8, 9]. Therefore, the perioperative nursing intervention of elderly patients receiving ERCP has always been a clinical problem. Therefore, in this study, the effects of comprehensive nursing intervention on the stress response and psychological state of elderly patients...
Materials and methods

Clinical data

A total of 100 elderly patients undergoing ERCP in our hospital from June 2016 to June 2017 were selected and divided into the observation group (n = 50, comprehensive nursing care) and the control group (n = 50, conventional nursing care) according to a random number table. Among them, the control group included 30 males and 20 females, aged 61-75 years, with a mean age of (66.6±5.3) years. Education level: junior middle school and primary school (26 cases), senior middle school and technical secondary school (17 cases), and junior colleges and above (7 cases). The observation group included 29 males and 21 females, aged 60-78 years, with a mean age of (66.9±5.3) years. Education level: junior middle schools and primary school (26 cases), senior middle schools and technical secondary schools (17 cases), and junior colleges and above (7 cases). There was no significant difference between the two groups in patients’ age and educational level (P > 0.05).

Methods

The control group received the conventional nursing intervention, and received education and psychological counseling according to the diagnosis contents and surgical treatment methods. After surgery, they received dietary nursing, and their basic vital signs were closely monitored. When they were discharged from the hospital, they were given instructions based on their conditions. The observation group received the comprehensive nursing intervention and conventional nursing intervention: personalized education content was formulated based on patients’ needs, and health education was performed for patients through videos and pictures. Meanwhile, active communication with patients and their families was performed to close the distance with them, gain their trust, learn about their inner worries, and conduct patient counseling. Additionally, their families and friends were asked to comfort the patients, so as to relieve their resistance to surgery and anxiety caused by family factors, environment, etc. The detailed descriptions of the daily basic nursing care were given to the patients and their families, and the patients were informed of the importance of active cooperation for a smooth surgery, so that the patients could consciously pay attention to the surgery. After surgery, the patients were instructed to stay in bed at the early stage. The follow-up was strengthened, the patients’ position was changed once every 2 h, and the patients were instructed to conduct out-of-bed activities properly at the later stage. Based on the patient’s conditions and eating habits, a personalized diet plan was formulated. Patients were told about successful cases after surgery to enhance their confidence in healing, and nursing care for common complications was provided. This study was approved by the Ethics Committee of Ganzhou People’s Hospital. All study participants provided written informed consent prior to participating in the study.

Evaluation indices

Stress response evaluation: active cooperation meant light (slight anxiety and fear), trying to avoid meant moderate (anxiety and depression), and uncooperative and affecting surgery meant severe (fear, depression and anxiety).

Psychological state assessment: Hamilton Anxiety Scale (HAMA, 14-item version) and the Hamilton Depression Scale (HAMD, 17 item version) were used. The two scales were evaluated separately, and higher scores indicate
SCL-90 and comprehensive nursing care

Mental state assessment: Symptom Checklist-90 (SCL-90) was used before and after intervention. The evaluation was performed. The SLC-90 contained 90 questions and 9 indices. In this experiment, 8 psychological indices of patients, namely, interpersonal relationship, paranoia, depression, fear, obsessive-compulsive disorder, hostility, anxiety and somatization, were evaluated respectively, and the positive cut-off value was 2 points, and the severity was proportional to the score.

Hemodynamics: heart rate (HR) and blood pressure, including systolic blood pressure (SBP) and diastolic blood pressure (DBP), were observed before and after intervention.

Postoperative recovery: anal exhaust time, first time out of bed and hospitalization time were compared.

Evaluation of nursing satisfaction: The nursing satisfaction questionnaire designed by our hospital was used for evaluation, including nursing environment, nursing attitude, nursing quality, etc. The total score was 100 points, of which 85-100 points stand for very satisfied, 60-84 points for relatively satisfied, and < 60 points for dissatisfied. Nursing satisfaction was the sum of very satisfied rate and relatively satisfied rate.

Complications: The patients in both groups were followed up for 6 months by telephone and outpatient follow-up. The incidence of complications in the two groups was counted.

Table 1. Comparison of HAMA and HAMD scores between the two groups before and after nursing intervention (mean ± SD, points)

<table>
<thead>
<tr>
<th>Group</th>
<th>Number of cases</th>
<th>Time</th>
<th>HAMA</th>
<th>HAMD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observation group</td>
<td>50</td>
<td>Before intervention</td>
<td>14.36±1.52</td>
<td>12.14±1.63</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Before surgery</td>
<td>15.96±1.63</td>
<td>14.25±1.36</td>
</tr>
<tr>
<td></td>
<td></td>
<td>After surgery</td>
<td>7.26±1.42</td>
<td>6.32±1.38</td>
</tr>
<tr>
<td>Control group</td>
<td>50</td>
<td>Before intervention</td>
<td>14.23±1.61</td>
<td>12.24±1.52</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Before surgery</td>
<td>18.32±1.57</td>
<td>16.82±1.24</td>
</tr>
<tr>
<td></td>
<td></td>
<td>After surgery</td>
<td>10.63±1.66</td>
<td>9.28±1.45</td>
</tr>
</tbody>
</table>

Note: Compared with the control group, *P < 0.05.

Statistical analysis

Statistics were analyzed using SPSS17.0. Measurement data were detected using t test, and counting data were detected using Chi-square test. P < 0.05 indicated a statistically significant difference.

Results

Comparison of stress responses between the two groups before and after nursing intervention

Before intervention, there was no significant difference in stress responses between the two groups (P > 0.05). After intervention, the stress response of the observation group was significantly higher than that of the control group (P < 0.05, Figure 1).

Comparison of HAMA and HAMD scores between the two groups before and after nursing intervention

Before intervention, there was no significant difference in the HAMA scores between the two groups (P > 0.05). After intervention, the HAMA scores of the observation and control groups were (7.26±1.42) points and (10.63±1.66) points respectively, indicating statistically significant differences (P < 0.05). Before intervention, there was no significant difference in the HAMD scores between the two groups (P > 0.05). After intervention, the HAMD scores of the observation and control groups were (6.32±1.38) points and (9.28±1.45) points respectively, indicating statistically significant differences (P < 0.05). The results suggested that comprehensive nursing care could significantly reduce the SCL-90 score and anxiety and...
Table 2. Comparison of SCL-90 scores between the two groups before and after nursing intervention (mean ± SD, points)

<table>
<thead>
<tr>
<th>Group</th>
<th>Number of cases</th>
<th>Time</th>
<th>Anxiety</th>
<th>Depression</th>
<th>Fear</th>
<th>Paranoid</th>
<th>Somatization</th>
<th>Obsessive-compulsive disorder</th>
<th>Interpersonal relationships</th>
<th>Hostility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observation group</td>
<td>50</td>
<td>Before intervention</td>
<td>2.07±0.18</td>
<td>2.08±0.22</td>
<td>2.14±0.21</td>
<td>2.06±0.16</td>
<td>2.04±0.17</td>
<td>2.03±0.14</td>
<td>2.00±0.13</td>
<td>1.98±0.12</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Before surgery</td>
<td>2.02±0.20</td>
<td>0.05±2.01</td>
<td>2.07±0.22</td>
<td>1.92±0.18</td>
<td>1.91±016</td>
<td>1.92±0.15</td>
<td>1.87±0.12</td>
<td>1.81±0.11</td>
</tr>
<tr>
<td></td>
<td></td>
<td>After surgery</td>
<td>1.72±0.15</td>
<td>1.72±0.17</td>
<td>1.66±0.16</td>
<td>1.59±0.12</td>
<td>1.55±0.13</td>
<td>1.56±0.11</td>
<td>1.52±0.10</td>
<td>1.59±0.09</td>
</tr>
<tr>
<td>Control group</td>
<td>50</td>
<td>Before intervention</td>
<td>2.06±0.19</td>
<td>2.09±0.21</td>
<td>2.13±0.22</td>
<td>2.04±0.17</td>
<td>2.05±0.16</td>
<td>2.02±0.15</td>
<td>1.99±0.14</td>
<td>1.97±0.13</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Before surgery</td>
<td>2.19±0.22</td>
<td>2.21±0.24</td>
<td>2.26±0.25</td>
<td>2.11±0.20</td>
<td>2.13±0.19</td>
<td>2.14±0.17</td>
<td>2.05±0.16</td>
<td>2.06±0.14</td>
</tr>
<tr>
<td></td>
<td></td>
<td>After surgery</td>
<td>1.91±0.17</td>
<td>1.93±0.19</td>
<td>1.90±0.20</td>
<td>1.81±0.15</td>
<td>1.83±0.14</td>
<td>1.79±0.14</td>
<td>1.82±0.12</td>
<td>1.81±0.11</td>
</tr>
</tbody>
</table>

Note: Compared with the control group, *P < 0.05.
depression during perioperative period in elderly patients after ERCP (Table 1).

Comparison of SLC-90 scores between the two groups before and after nursing intervention

Before intervention, there was no significant difference in SLC-90 scores for each of the eight indices as measured by interpersonal relationship, paranoia, depression, etc. between the two groups ($P > 0.05$). After intervention, the observation group showed significantly lower scores in the eight indices such as interpersonal relationship, paranoia, depression, etc. than the control group, indicating statistically significant differences ($P < 0.05$, Table 2).

Comparison of postoperative recovery between the two groups

The observation group was significantly superior to the control group in terms of postoperative recovery, such as anal exhaust time, first time out of bed, hospitalization time, showing statistically significant differences ($P < 0.05$, Figure 3).

Comparison of the incidence rate of complications between the two groups

The incidence rate of complications in the observation group was remarkably lower than that in the control group ($P < 0.05$, Table 3).

Comparison of nursing satisfaction between the two groups

After intervention, the observation group was markedly superior to the control group in nursing satisfaction, indicating statistically significant differences ($P < 0.05$, Table 4).

Discussion

In recent years, ERCP has been widely applied in the diagnosis and treatment of pancreatic
SCL-90 and comprehensive nursing care

Table 3. Comparison of complication rates between the two groups [n (%)]

<table>
<thead>
<tr>
<th>Group</th>
<th>Number of cases</th>
<th>Gastrointestinal bleeding</th>
<th>Hyperamylasemia</th>
<th>Biliary tract infection</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observation group</td>
<td>50</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>2.00*</td>
</tr>
<tr>
<td>Control group</td>
<td>50</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>16.00</td>
</tr>
</tbody>
</table>

Note: Compared with the control group, *P < 0.05

Table 4. Comparison of nursing satisfaction between elderly patients receiving ERCP in the two groups during the perioperative period [n (%)]

<table>
<thead>
<tr>
<th>Group</th>
<th>Number of cases</th>
<th>Very satisfied</th>
<th>Relatively satisfied</th>
<th>Dissatisfied</th>
<th>Satisfaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observation group</td>
<td>50</td>
<td>32</td>
<td>15</td>
<td>3</td>
<td>94.00*</td>
</tr>
<tr>
<td>Control group</td>
<td>50</td>
<td>23</td>
<td>14</td>
<td>13</td>
<td>74.00</td>
</tr>
</tbody>
</table>

Note: Compared with the control group, *P < 0.05

and liver diseases in the elderly, and it features a simple operation, less trauma and less pain, which have gained growing clinical recognition. ERCP combined with the corresponding nursing care models can exert effective therapeutic effects [10-12]. Some elderly patients do not know about ERCP and worry about clinical prognosis, which leads to anxieties and fears, affecting the smooth surgery [13-15]. At present, conventional nursing care is mostly adopted to conduct nursing intervention for ERCP patients during the perioperative period, which ignores the psychological state and stress response of patients [16].

Empirical studies have exhibited that many patients have anxiety, fear and other unhealthy psychological states before surgery, which are mostly caused by external factors [17, 18]. The Symptom checklist 90 (SCL-90), which is one of the most famous mental health test scales in the world, has the advantages of a large capacity, abundant symptoms and more accurate description of subjects' conscious symptoms [19]. Through general conventional nursing intervention, patients can have certain understanding of surgery and prognosis, but there are deficiencies. Through using SCL-90 to evaluate patients' psychological state at different observation periods, we can effectively grasp the changes in their psychological state [20]. Based on conventional nursing care, comprehensive nursing care is performed to conduct intervention on patients' psychological states and emotions, increase psychological care for patients and improve the poor psychological state, so that patients receive the most effective nursing intervention for disease treatment [21, 22]. Clinical findings have suggested that preoperative application of comprehensive nursing intervention can reduce postoperative complications and improve patients' daily standards of living [23, 24]. In this study, the nursing satisfaction of ERCP patients in the observation group was markedly higher than that in the control group (P < 0.05). For 50 elderly patients receiving ERCP during the perioperative period in the observation group, their psychological state and stress response degree were significantly lower than those in the control group, and their anal exhaust time, first time out of bed and length of stay were remarkably shorter than those in the control group. The observation group was superior to the control group in hemodynamic indices and SCL-90 scores for the eight indices (P < 0.05), which are basically consistent with the study concluded by Wang et al. [25]. This suggests that comprehensive nursing intervention can effectively elevate patients' confidence in treatment, relieve patients' worries about clinical prognosis, alleviate stress response of elderly patients, reduce complications and promote physical recovery.

In summary, for elderly patients receiving ERCP during the perioperative period, the comprehensive nursing intervention and SCL-90 can effectively improve the stress responses and psychological states, promote recovery, reduce complications, and elevate the satisfaction of patients and their families, exhibiting that the comprehensive nursing intervention and SCL-90 are worthy of clinical promotion and application.
Disclosure of conflict of interest

None.

Address correspondence to: Donghua Huang, The First Department of Cardiovascular Medicine, Ganzhou People’s Hospital, No. 16, Meiguan Avenue, Zhanggong District, Ganzhou 341000, Jiangxi Province, China. Tel: +86-15970781314; E-mail: donghuahuang30@163.com

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