Effect of Nasopharyngeal Respiratory Training Combined with Nursing Guidance on the Intraoperative Cooperation of Patients Undergoing the First Gastroscopy

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Abstract

Objective: To explore the effect of nasopharyngeal respiratory training combined with guided nursing on the intraoperative cooperation of patients undergoing the first gastroscopy. Methods: A total of 90 patients who underwent the first gastroscopy in our hospital from January, 2019 to February, 2014 were selected as the research objects. The sample content calculation formula of the mean test of two independent samples was adopted in this study. Patients were divided into the odd group as the control group (routine nursing) and the even group as the study group (in addition to the measures of the control group, the patients were given nasopharyngeal respiratory training combined with guided nursing). The changes of vital signs at different time points were compared between the two groups. The surgical cooperation and discomfort, the average number of nausea and vomiting, and the examination time were compared between the two groups.

Results: SBP and DBP were compared with HR and SpO in the two groups. The SBP, DBP, HR and SPO of the two groups were increased first and then decreased when decreased somewhat, with T0 compared with t, there was a statistical difference (P < 0.05). Compared with the control group, the SpO in the study group was significantly decreased in T3~T4 while SBP, DBP and HR were significantly increased at T3~T4. The difference was significant (P < 0.05). The surgical cooperation degree of the study group was significantly higher than that of the control group (P < 0.05). The comfort level of the study group was significantly higher than that of the control group (P < 0.05). The average number of nausea and vomiting in the study group was significantly less than that in the control group, and the examination time in the study group was shorter than that in the control group, and the differences were significant (P < 0.05).

Conclusions: The application effect of nasopharyngeal respiratory training combined with nursing guidance in patients undergoing gastroscopy for the first time is accurate, which can effectively improve the surgical cooperation of patients, prevent drastic
fluctuations of vital signs, reduce discomfort reactions, and shorten the examination time, which is worthy of clinical promotion.

Keywords
Nasopharyngeal open-throat breathing, Guided nursing, Gastroscopy, Cooperation degree

Gastroenteroscopy is a widely used and indispensable clinical technique in the diagnosis and treatment of digestive tract diseases, which plays a positive role in clinical practice [1]. But gastroscopy need to closely cooperate with patients, the common gastroscopy is very painful for patients, especially for the first time to check the patients because of its own factors, to pain tolerance level is poorer, lack of the cognition to the check at the same time, easy to produce adverse psychological, such as fear, tension inspection process can cause nausea and vomiting, throat discomfort, choking cough, such as stress, It will eventually affect the examination, and even lead to medical disputes [2]. Therefore, effective nursing interventions are needed to ensure the safety of diagnosis and treatment [3]. At present, most of the relevant studies at home and abroad focus on psychological construction and emotional comfort intervention, and there is no specific and feasible behavioral intervention. In recent years, studies have found that when patients undergoing gastroscopy can master rhythmic breathing coordination, the tolerance of surgery can be improved and the occurrence of adverse reactions can be reduced [3]. In order to further effective and feasible intervention program, a total of 90 patients who underwent gastroscopy for the first time in our hospital were selected as the research objects. Nasopharyngeal respiratory training combined with guided nursing was used to explore the effectiveness and feasibility of this method. The report is as follows.

1. Data and methods

1.1 General Information

A total of 90 patients who underwent gastroscopy for the first time in our hospital from January, 2019 to February, 2019 were selected as the research objects. The sample content calculation formula of the mean test of two independent samples was adopted in this study. The patients were divided into two groups according to the parity of the last number of the serial number of patients. The odd group was the control group, and the even group was the study group. Combined with the sample size in similar literature and the number of gastroscopy as reference, the minimum sample size required for each group was 40. Considering the 20% sample loss rate, the minimum sample size required for each group was 45, and a total of 90 patients were enrolled. There were 51 male patients and 39 female patients, with an average age of 58.82±6.87 years (range 23-87 years). There was no significant difference in gender, age, course of disease, education level, disease type and other general data between the two groups (P > 0.05). For details, see Table 1. The study was approved by the hospital ethics committee before implementation.

Table 1. Comparison of general data between the two groups

<table>
<thead>
<tr>
<th>group</th>
<th>The number of cases</th>
<th>gender</th>
<th>Education level (example)</th>
<th>Type of disease (example)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>male</td>
<td>female</td>
<td>Age (years)</td>
<td></td>
</tr>
<tr>
<td>The team</td>
<td>45</td>
<td>25</td>
<td>58.36 ± 6.71</td>
<td>16 20 9 1 25 1 2 16</td>
</tr>
<tr>
<td>The control group</td>
<td>45</td>
<td>26</td>
<td>57.42 ± 5.98</td>
<td>16 18 11 1 23 1 3 17</td>
</tr>
<tr>
<td>χ²/t</td>
<td>0.289</td>
<td>0.046</td>
<td>0.152 0.288 0.369</td>
<td></td>
</tr>
<tr>
<td>P</td>
<td>0.668</td>
<td>0.964</td>
<td>0.365 0.461 0.527</td>
<td></td>
</tr>
</tbody>
</table>
1.1.1 Inclusion criteria
(1) There were no contraindications for gastroscopy [4]; (2) Normal thinking and cognitive ability, with normal language communication ability; (3) underwent gastroscopy for the first time;

1.1.2 Exclusion criteria
(1) With other malignant tumors or serious chronic diseases; (2) severe respiratory, circulatory and nervous system diseases; (3) those who are in pregnancy, childbirth or lactation; (4) mental abnormalities can not cooperate; (5) Incomplete clinical data; (6) those who did not sign the informed consent form.

1.1.3 Exclusion criteria
(1) The information is incomplete or has influence on the recognition judgment; (2) Patients who quit due to their own reasons.

1.2 Methods

1.2.1 The control group
The control group received routine nursing. (1) It was necessary to carry out effective communication with patients before operation, and give targeted health education measures, so as to help them grasp the necessity and importance of gastroscopy, and explain the corresponding operation process; (2) The vital indicators of the patients, such as heart rate, blood pressure, respiratory rate and oxygen saturation, should be closely observed during the operation. The head of the patient should be slightly tilted back during the operation to increase the pharyngeal space, which is helpful for the smooth entry of the gastroscope. If there is sputum blockage, the oral secretions should be cleaned in time to ensure the patency of the respiratory tract. (3) The patient should be observed for at least 20 minutes after the completion of relevant diagnosis and treatment. During this period, the patient should be closely observed for bleeding, abdominal discomfort and other symptoms, and the patient should be advised to pay attention to the relevant matters after surgery, such as fasting and drinking for 2 hours. After 4 hours, easy to digest soft food can be given appropriately. On the day of the examination, avoid strenuous labor and exercise. In case of throat discomfort or obstruction, gargle with light salt water and do not cough.

1.2.2 Team
(1) Preoperative training: 30 minutes before the examination, all patients were simulated the state of gastroscopy. The patients were taken to the left knee position with mouth open and mouth in mouth. The patients were instructed to close their eyes and remain quiet for 3 minutes. Inhalation needs to keep open, lower abdomen, exhale adduction, the breathing process must be even and slow, and inspiratory time out for 2 times, by the same nurse breathing training guidance to all the subjects, to master the essentials, k charge patients keep checking process by the nose pharynx breathing to breathe. (2) Guidance on intraoperative cooperation requirements: , according to research by gastroscopy and discomfort reaction mainly depends on the patient's cooperation degree, therefore, need a detailed nursing instruction before inspection, inform the intraoperative cooperate with key points and the importance of operating in accordance with the doctor's advice, explain intraoperative discomfort reaction may occur at the same time, the reaction such as charge patients vomiting and nausea must not touch, as far as possible to keep the whole body relax. (3) Intraoperative guidance of deep breathing: During gastroscopy, nurses should always remind patients of relevant precautions and guide them to breathe slowly, especially for patients with strong reactions, so as to maintain the smooth progress of the examination.

1.3 Observation indexes and evaluation tools
(1) 30min before operation (T₀), 5 min before operation (T₁), at the beginning of the examination (T₂), and when the gastroscope enters the esophagus through the throat (T₃), at the end of the procedure (T₄) The heart rate (HR), systolic blood pressure (SBP), diastolic blood pressure (DBP) and oxygen saturation (SpO₂) of the two groups were detected and other indicators were detected.

(2) Evaluation criteria of cooperation, ① full cooperation: the patient's esophagus can be completely opened, keep quiet, no serious nausea and vomiting, the body is relaxed, the patient's breathing is stable, and the examination is successfully completed. ② Basic cooperation: the esophagus was generally opened, and the patient was in a nervous state. After entering the mirror, nausea and vomiting occurred many times, clenching and scratching, but
the examination could be completed. ③ Non-cooperation: failure to meet any of the above criteria, the examination failed [5].

(3) Evaluation criteria for the degree of discomfort reaction: refer to Zheng Guirong [6]. The self-designed comfort assessment scale divided the patients' comfort into four levels, which were respectively expressed as degree i, degree ii, degree iii and degree iv. Each level indicated no obvious discomfort, mild discomfort, moderate discomfort and severe discomfort. The lower the level of the patient, the higher the comfort level of the patient.

(4) The average number of nausea and vomiting and examination time of the two groups were investigated.

1.4 Statistical treatment

SPSS22.0 software was used to calculate and process all the data in the study. The count data were expressed in the form of %, and chi-square test was carried out. In order to ⑤ the measurement data were expressed in the form of ±s, and T test was carried out. When the calculated results showed P < 0.05, the difference of data was statistically significant.

2. The results

2.1 Changes in vital signs at different time points in the two groups

SBP, DBP and HR, SpO in the two groups ② The SBP, DBP, HR and SpO of the two groups were increased first and then decreased, T3 And increased significantly in T4 When decreased somewhat, with T0 Compared with t, there was a statistical difference (P < 0.05). Compared with the control group, the SpO in the study group was significantly decreased in T3~T4 While SBP, DBP and HR were significantly increased at T3~T4 The difference was significant (P < 0.05), as shown in Table 2.

Table 2. Changes of vital signs in the two groups at different time points (n=45, ±s)

<table>
<thead>
<tr>
<th>indicators</th>
<th>group</th>
<th>T0</th>
<th>T1</th>
<th>T2</th>
<th>T3</th>
<th>T4</th>
</tr>
</thead>
<tbody>
<tr>
<td>SBP(mmHg)</td>
<td>The team</td>
<td>120.63 + / - 10.35</td>
<td>119.46 + / - 11.37</td>
<td>125.46 + / - 12.28</td>
<td>129.94 + / - 11.35</td>
<td>119.96 + / - 12.56</td>
</tr>
<tr>
<td></td>
<td>The control group</td>
<td>117.40 + / - 10.26</td>
<td>118.86 + / - 12.41</td>
<td>139.75 + / - 12.69</td>
<td>148.95 + / - 12.45</td>
<td>130.32 + / - 15.65</td>
</tr>
<tr>
<td>HR (b/min)</td>
<td>The team</td>
<td>80.31 + / - 9.74</td>
<td>78.52 + / - 9.16</td>
<td>77.42 + / - 9.71</td>
<td>73.42 + / - 8.21</td>
<td>72.34 + / - 4.63</td>
</tr>
<tr>
<td></td>
<td>The control group</td>
<td>79.94 + / - 9.25</td>
<td>78.83 + / - 9.53</td>
<td>76.14 + / - 9.16</td>
<td>76.03 + / - 8.62</td>
<td>77.72 + / - 4.51</td>
</tr>
<tr>
<td>SpO2(%)</td>
<td>The team</td>
<td>96.63 + / - 10.78</td>
<td>99.46 + / - 11.46</td>
<td>99.75 + / - 12.54</td>
<td>99.94 + / - 11.72</td>
<td>99.96 + / - 22.56</td>
</tr>
<tr>
<td></td>
<td>The control group</td>
<td>97.40 + / - 10.50</td>
<td>98.86 + / - 12.35</td>
<td>101.46 + / - 12.36</td>
<td>98.95 + / - 12.95</td>
<td>100.32 + / - 15.65</td>
</tr>
<tr>
<td>DBP(mmHg)</td>
<td>The team</td>
<td>95.11 + / - 12.42</td>
<td>85.59 + / - 10.53</td>
<td>83.42 + / - 12.63</td>
<td>89.62 + / - 10.41</td>
<td>90.24 + / - 6.86</td>
</tr>
<tr>
<td></td>
<td>The control group</td>
<td>95.41 + / - 11.46</td>
<td>90.65 + / - 12.46</td>
<td>90.24 + / - 11.44</td>
<td>85.94 + / - 11.72</td>
<td>86.73 + / - 8.22</td>
</tr>
</tbody>
</table>

Note: Compared to the control group, b Denotes P < 0.05; Compared with T0, aDenotes P < 0.05.

2.2 Comparison of surgical cooperation between the two groups

The surgical cooperation of patients in the study group was significantly higher than that in the control group, and the difference was significant (P < 0.05). For details, see Table 3.

Table 3. Comparison of surgical cooperation between the two groups [n=45, cases (%)]

<table>
<thead>
<tr>
<th>group</th>
<th>Fully cooperate with</th>
<th>Basic cooperate</th>
<th>Don't fit</th>
<th>Cooperation degree</th>
</tr>
</thead>
<tbody>
<tr>
<td>The control group</td>
<td>24 (53.33)</td>
<td>20 (44.44)</td>
<td>5 (11.11)</td>
<td>40 (88.89)</td>
</tr>
<tr>
<td>The team</td>
<td>28 (62.22)</td>
<td>16 (35.56)</td>
<td>1 (2.22)</td>
<td>44 (97.78)</td>
</tr>
<tr>
<td>(X^2)</td>
<td></td>
<td></td>
<td></td>
<td>5.22</td>
</tr>
<tr>
<td>(P)</td>
<td></td>
<td></td>
<td></td>
<td>&lt; 0.05</td>
</tr>
</tbody>
</table>
2.3 Comparison of comfort evaluation between the two groups

The comfort evaluation of the study group was significantly higher than that of the control group, and the difference was significant (P < 0.05). See Table 4 for details.

<table>
<thead>
<tr>
<th>group</th>
<th>The number of cases</th>
<th>I level</th>
<th>II level</th>
<th>III level</th>
<th>IV level</th>
<th>comfort</th>
</tr>
</thead>
<tbody>
<tr>
<td>The team</td>
<td>45</td>
<td>30 (66.67)</td>
<td>13 (28.89)</td>
<td>2 (4.44)</td>
<td>0 (0.00)</td>
<td>40 (100.00)</td>
</tr>
<tr>
<td>The control group</td>
<td>45</td>
<td>16 (35.55)</td>
<td>19 (42.22)</td>
<td>8 (17.78)</td>
<td>2 (4.44)</td>
<td>36 (90.00)</td>
</tr>
</tbody>
</table>

$\chi^2$  
$P$ < 0.05

2.4 Comparison of nausea and vomiting times and examination time between the two groups

The average number of nausea and vomiting in the study group was significantly less than that in the control group, and the examination time was shorter than that in the control group, and the differences were significant (P < 0.05). See Table 5 for details.

<table>
<thead>
<tr>
<th>group</th>
<th>The number of cases</th>
<th>Average number of nausea and vomiting (times)</th>
<th>Examination time (min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>The team</td>
<td>45</td>
<td>0.25 +/- 0.16</td>
<td>15.68 +/- 2.35</td>
</tr>
<tr>
<td>The control group</td>
<td>45</td>
<td>2.34 +/- 0.59</td>
<td>22.45 +/- 3.26</td>
</tr>
</tbody>
</table>

$t$  
$P$ < 0.05

3. Discussion

Gastroscopy refers to the gastric tube inserted through the mouth when the patient is fully conscious. During the examination, the patient is prone to negative emotions such as tension, fear and anxiety, which will increase the risk of stress response [7]. Especially in the insert to the pharynx, will have on the vagus nerve stimulation, make the hypothalamus - pituitary - adrenal cortex function strengthen, excited sympathetic nerve and adrenal medulla, which may lead to raise of adrenaline and cortisol, causes the discomfort such as nausea, vomiting, choking cough response, patients lead to interruption or failure examination, missed the best treatment time, therefore improve patient compliance, It is of great significance for patients to receive treatment smoothly to ensure the smooth progress of gastroscopy [8-9].

Clinical observation showed that the control degree of breathing mode in gastroscopy mainly depends on the degree of cooperation. That is, if the patient can maintain a good respiratory rhythm and fully open the epiglottis during the examination, the adverse reactions during gastroscopy insertion can be reduced, and the patient's tolerance can be improved, so as to promote the successful completion of the examination [10-11]. Therefore, finding a suitable breathing training method has become a hot spot in clinical research, Zhang Hongling [12] Zhang et al. proposed the effectiveness of nasopharyngeal open breathing in gastroscopy patients, which can stabilize heart rate, systolic blood pressure and diastolic blood pressure, reduce the discomfort score during endoscopic insertion, improve the coordination of subjects during examination, and make gastroscopy complete smoothly. The results of this study showed that SBP and DBP were compared with HR and SpO in the two groups: the SBP, DBP, HR and SPO showed a trend of increasing first and then decreasing, $T_1$ And increased significantly in $T_4$. When decreased somewhat, with $T_0$. Compared with $t$, there was a statistical difference (P < 0.05). This indicates that the vital signs of patients will fluctuate with lens insertion, mainly because the stimulation of the posterior pharyngeal wall during lens insertion will lead to stress response [13]. Compared with the control group, the SpO of the study group was significantly decreased, In $T_3$~$T_4$, while SBP, DBP and HR were significantly increased at $T_3$~$T_4$. Significantly reduced, significant difference (P < 0.05), prompted nasal pharynx breathing training combined guide nursing in
gastroscopy for the first time can lead to the normal level of the patient's vital signs, mainly due to slow deep breathing in the perioperative patients absorb more oxygen, reduce the secretion of sympathetic nerve excitability and catecholamine, thereby stable vital signs. It can reduce the occurrence of intraoperative palpitation, chest tightness, shortness of breath, improve the blood oxygen saturation, and stabilize the patient's breathing state, reduce stomach shaking, which is conducive to the accurate observation of the lesions [14-15]. In addition, the surgical cooperation degree of patients in the study group was significantly higher than that in the control group, the comfort evaluation of patients in the study group was significantly higher than that in the control group, the average number of nausea and vomiting during the examination was significantly lower than that in the control group, and the examination time was shorter than that in the control group, and the differences were significant (P < 0.05). This indicates that nasopharyngeal respiratory training combined with nursing guidance can effectively improve the surgical cooperation of patients, reduce discomfort, and shorten the examination time, which is consistent with the research results of the above scholars, and proves that the conclusion of this study is not accidental. The reasons are analyzed as follows: by strengthening respiratory training, nasopharyngeal respiratory training can promote patients to maintain a good respiratory rhythm during the examination, improve their adaptability, and improve patients' tolerance and comfort of gastroscopy [16-17]; Patients in stable breathing at the same time, ease anxiety status, can lower back nucleus ventrolateral solitary Cambodia in D2, H1 and serotonin, prevent nausea and vomiting related receptor activation, effectively blocking the gag reflex, reduce nausea and vomiting occur and lead to esophageal injury to the back of the throat, when under gastroscopy smoothly, the stomach gas filling, when gastroscopy is carried out successfully, gastric wall gas filling can be provided with a better operation field for the operator, so as to shorten the successful time of endoscopic insertion [18].

It is worth noting that with the widespread application of gastroscopy, the requirements for nursing staff are also increased. It is necessary to strengthen the training of nursing staff, master the principles and operation procedures of gastroscopy, and master the complications and early warning scheme of the examination, so as to reduce the risk of complications. It is necessary to make full preparation before surgery, strengthen cooperation during surgery and give corresponding guidance after surgery, so as to ensure the smooth development of diagnosis and treatment and ensure the safety of patients.

In conclusion, the application effect of nasopharyngeal respiratory training combined with guided nursing in patients undergoing gastroscopy for the first time is accurate, which can effectively improve the surgical cooperation of patients, prevent drastic fluctuations of vital signs, reduce discomfort reactions, and shorten the examination time, which is worthy of clinical promotion. But there are still some deficiencies in the study, such as the total number of samples is not much selection, samples are from the same hospital, may make the results of the study appear a certain bias, and analyze the client's discomfort related factors, the future still need large sample, multi-center, randomized controlled trial, get a more objective and comprehensive research results, to further confirm the above conclusions and guide clinical practice.

References

[1] Xu Hongyan, Yao Xiaoling. Effect of nasopharyngeal respiratory training combined with nursing guidance on intraoperative cooperation of patients undergoing endoscopy for the first time [J]. Western Chinese Medicine, 222, 35(1):142-144.


