

Analysis of the Effect of Psychological Nursing Combined with Breathing Exercises in Improving Lung Function in Patients with Pneumoconiosis

Jing Huang

Health Management Center, Deyang People's Hospital, Deyang, China

Email: 873775841@qq.com

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Abstract

Objective: To analyze the effect of psychological nursing combined with breathing exercises on lung function of patients with pneumoconiosis, and to analyze the methods. A total of 64 cases of pneumoconiosis admitted from January 2020 to December 2022 were divided into the reference group and the experimental group by random numerical table. On the basis of symptomatic treatment, the control group was combined with conventional nursing measures and breathing exercises, while the experimental group was treated with psychological nursing on the basis of the control group, and the pulmonary function indexes and adverse mood of the two groups before and after nursing were compared. **Results:** There was no difference in SAS score, SDS score and pulmonary function indexes between the two groups before intervention ($P > 0.05$), and the SAS score in the experimental group was the SDS score was lower than that of the control group, and FEV1, FEV1% and FEV1/FVC were higher than those of the control group, and the $P < 0.05$ was lower.

Keywords

Pneumoconiosis, Psychological Nursing, Breathing Exercises, Lung Function

1. Introduction

At present, pneumoconiosis has become the most prevalent occupational disease in China, and diffuse fibrosis of lung tissue is the main manifestation, accompanied by typical respiratory symptoms such as cough and sputum production and dyspnea of varying degrees. So far, there is still no specific drug for the treatment

of pneumoconiosis, so non-pharmacological interventions are recommended, among which exercise rehabilitation training is the most common, and breathing exercises, as a type of rehabilitation training, can help improve patients' clinical symptoms and lung function. However, due to the long-term need for continuous training and the recurrence of the disease, the patient is prone to various negative emotions, which reduces the compliance and effectiveness of the training [1]. Therefore, it is necessary to cooperate with psychological care for patients with pneumoconiosis who undergo breathing exercises.

2. Information and Methods

2.1. General Information

A total of 64 patients with pneumoconiosis admitted from January 2020 to December 2022 were divided into experimental group and reference group, with 32 cases in each group, and the basic data of the two groups were tested by data statistical software, and the P value was higher than 0.05, as shown in **Table 1**.

Inclusion criteria: the selected cases were diagnosed according to the relevant criteria of the "Clinical Diagnostic Criteria for Pneumoconiosis in China (GBZ70-2009)", the condition was in a stable stage, and they could participate in breathing exercises normally, and voluntarily participated in this study.

Exclusion criteria: those with neurological disorders, contraindications to rehabilitation training, and those who quit halfway.

2.2. Methods

The two groups were treated with symptomatic treatment and usual nursing measures.

2.2.1. Reference Group

The patients in the reference group carried out breathing exercises, and the specific operations were as follows: 1) breathing training. The patient first participates in abdominal breathing training, that is, the patient is instructed to take continuous training such as bending over, chest expansion exercises, and limb movements to continuously restore the patient's respiratory function. 2) Aerobic

Table 1. Compares the general data of the two groups.

| General information | Experimental group | Reference group | t/x^2 | P | |
|------------------------|--------------------|-----------------|---------|-------|-------|
| gender | man | 16 | 18 | 0.251 | >0.05 |
| | woman | 16 | 14 | | |
| Average age | 46.30 ± 5.36 | 46.28 ± 5.31 | 0.015 | >0.05 | |
| Mean course of illness | 3.55 ± 1.36 | 3.51 ± 1.32 | 0.067 | >0.05 | |
| by stages | Phase I | 9 | 8 | 0.275 | >0.05 |
| | Stage II | 15 | 17 | | |
| | Stage III | 6 | 5 | | |

training. With the assistance of nursing staff, patients carry out activities such as swinging arms, going up and down stairs, reminding patients to swing their upper limbs as much as possible in the process of activity, adjust the duration and frequency of exercise in combination with the patient's situation, if the patient's rehabilitation effect is good, the patient can be reminded to appropriately speed up the speed of walking, on the contrary, once the training exists in the lower limbs weakness or dyspnea, the training should be suspended, and the daily training time should be controlled at about 20 - 30 min, and the training can be done 3 - 5 times a week. 3) Effective cough and expectoration training. Remind the patient to sit up straight as much as possible, continue to carry out cough training, cough while tightening the abdomen and knees, and forcefully cough out the hidden sputum in the lungs, each time for about 15 - 20 min, 3 times a day. 4) Abdominal pursed lip breathing training. Remind the patient to breathe deeply through the nose, breathe to the maximum depth as much as possible, straighten the waist and abdomen, keep the body in the posture of playing the flute, and then exhale slowly through the lips, control the time ratio of exhalation to inhalation at 2:1 or 3:1, each time lasts for 5 min, and train 3 - 5 times a day.

2.2.2. Experimental Group

In the experimental group, psychological nursing was carried out at the same time as the breathing exercise training of the patients in the reference group, and the implementation steps were as follows: 1) construct a good nurse-patient relationship. The successful implementation of nursing measures is based on a good nurse-patient relationship, and nursing staff should actively communicate with patients, sincerely express their concern for patients and emotions, fully gain the trust of patients, and build a collaborative and trusting nurse-patient relationship. Especially for older patients, the caregivers are gentle and patient, reducing the patient's resistance to the caregiver. 2) Emotional assessment. Combined with the patient's language, speech speed, facial expressions, behavior, etc., the patient's psychological status was preliminarily evaluated, and the patient with obvious bad emotions patiently communicated and communicated, and after gaining their trust, they were asked about the reasons for the occurrence of negative emotions, and the intervention was carried out from the causes. 3) Targeted implementation of emotional interventions. First of all, carry out cognitive education. In addition, it is also necessary to inform patients of the importance of pneumoconiosis training in pneumoconiosis, improve the importance of pneumoconiosis training, and patiently inform patients of the impact of emotional state on pneumoconiosis rehabilitation. Second, cognitive-behavioral interventions. Nursing staff use supportive language and encouraging language to guide patients to express their inner feelings and thoughts, actively cooperate with patients to analyze problems, repeatedly inform patients of the negative impact of bad emotions on pulmonary function rehabilitation, actively change patients' thinking concepts, and remind patients that they can choose their favorite things when they find themselves in a bad mood, such as listening to music, playing

games, listening to stories. At the same time, it is also necessary to inform the patient about the undesirable behaviors in life that can aggravate pneumoconiosis, remind the patient to develop correct behaviors, and insist on participating in breathing exercises. Finally, family support. Pay attention to the ideological work of the patient's family members, especially spouses, siblings, etc., actively build a family support system, and fully obtain the support and cooperation of family members, who can accompany or supervise the patient's daily participation in breathing exercises, so as to avoid the patient's slack and affect the effect of the training.

2.3. Observe Indicators

1) The negative emotions of the two groups before and after nursing were compared. The Anxiety Self-Rating Scale (SAS) and the Depression Self-Rating Scale (SDS) were issued to evaluate anxiety and depression, both of which contained 20 questions, and each question was scored on a four-level scale, that is, the total score was 0 - 80 points, and the score was positively correlated with the severity of the bad mood [2].

2) The pulmonary function indexes of the two groups were compared before and after nursing. The Micro Lab Pulmonary Function Instrument was used to measure the pulmonary function indicators, including forced expiratory volume at 1 s (FEV1), FEV1 as a percentage of the predicted value (FEV1%), and the ratio of forced expiratory volume in 1 second to forced vital capacity (FEV1/FVC).

2.4. Statistical Methods

In this paper, the comparison between the general data and the observed indicators was carried out with the help of SPSS21.0 software, and the data related to counting were expressed as percentages, and the results were expressed by X² test, and the data related to measurement were expressed by mean, and the t-test was used, and when $P < 0.05$ was used, there was a significant difference in the compared data.

3. Results

3.1. Comparison of Negative Emotions between the Two Groups before and after Nursing

Before nursing, there was no difference in scores between the two groups ($P > 0.05$), but after nursing, there was a difference between SAS and SDS scores with a $P < 0.05$, as shown in **Table 2**.

3.2. Comparison of Pulmonary Function Indexes between the Two Groups before and after Nursing

There was no statistically significant difference in FEV1, FEV1% and FEV1/FVC between the two groups before treatment ($P > 0.05$), but after treatment, FEV1, FEV1% and FEV1/FVC in the experimental group were higher than those in the control group, and the $P < 0.05$ was 0.05, as shown in **Table 3**.

Table 2. Comparison of negative emotions before and after nursing [$(\bar{x} \pm s)$, points].

| Constituencies | n | SAS Score | | SDS score | |
|--------------------|----|------------------|-----------------|------------------|-----------------|
| | | Before treatment | After treatment | Before treatment | After treatment |
| Experimental group | 32 | 56.18 ± 4.31 | 38.15 ± 3.35 | 54.18 ± 4.15 | 36.11 ± 3.05 |
| Reference group | 32 | 56.21 ± 4.36 | 50.54 ± 3.84 | 54.11 ± 4.12 | 49.25 ± 3.25 |
| <i>t</i> | / | 0.028 | 13.754 | 0.068 | 16.677 |
| P | / | >0.05 | <0.05 | >0.05 | <0.05 |

Table 3. Comparison of pulmonary function indexes before and after nursing ($\bar{x} \pm s$).

| Constituencies | Time | FEV1 (L) | FEV1% | FEV1/FVC |
|--------------------|------------------|-------------|--------------|--------------|
| Experimental group | Before treatment | 1.43 ± 0.42 | 42.54 ± 4.21 | 51.84 ± 5.32 |
| | After treatment | 1.96 ± 0.38 | 58.21 ± 5.34 | 58.65 ± 8.64 |
| Reference group | Before treatment | 1.42 ± 0.39 | 42.48 ± 4.19 | 51.81 ± 5.29 |
| | After treatment | 1.68 ± 0.40 | 50.64 ± 4.65 | 53.54 ± 6.65 |

4. Discuss

Pneumoconiosis is the abbreviation of pneumoconiosis, which is caused by prolonged inhalation of productive dust, which belongs to a class of systemic diseases induced by diffuse fibrosis in the lungs, and the main clinical symptoms of patients are cough, dyspnea, sputum production, chest pain, etc., if not treated in time, it may further affect the digestive system and even threaten the patient's life [3]. Pneumoconiosis is difficult to cure, and the patient's lung function is accompanied by severe damage, resulting in abnormal blood oxygen saturation and reducing the patient's daily living ability and quality of life. At present, there is still no specific drug for the treatment of pneumoconiosis in clinical practice, and rehabilitation training is mainly advocated, and rehabilitation breathing training is a common type in rehabilitation nursing, which improves alveolar capacity by enhancing thoracic activity, lung capacity, tidal volume, etc., and gradually improves respiratory function. However, breathing training alone is slow to take effect, and some patients are prone to various adverse emotions under the influence of the disease, and may even give up training in severe cases, which is not conducive to the control of the disease [4]. Therefore, it is clinically recommended that patients should pay attention to the psychological care of patients while training breathing exercises. Psychological nursing refers to the intervention process that uses the relevant theories and methods of applied psychology to intervene in a planned and step-by-step manner around the characteristics, psychological activities, and psychological problems of certain objects, so that they can develop towards the desired goal, and the more common psychological intervention methods include psychological counseling, psychotherapy, psychological crisis intervention, etc. [5].

In the above, we analyzed the effect of psychological care for patients with

pneumoconiosis who received breathing exercises training and compared it with those who did not receive psychological care, and found that patients with psychological care had lower scores of anxiety and depression, while patients had better improvement in lung function indicators. The reason is that breathing exercise training refers to the control and use of breathing, so as to improve the patient's diaphragm contractility, increase the volume of the chest cavity, improve the patient's lung function, and keep the respiratory tract unobstructed, but some patients are prone to anxiety or depression and other emotions under the influence of their beloved disease, if these emotions can not be relieved, it will affect the enthusiasm and initiative to participate in breathing exercise training, so in order to alleviate the bad mood, cooperate in the process of breathing exercises Psychological nursing, by assessing the patient's psychological state, implementing early intervention for patients with bad emotions, and helping patients alleviate negative emotions and better establish confidence in breathing exercise training through health education, behavior guidance and personalized psychological intervention, so as to give full play to the function of breathing exercise training and improve lung function. Compared with previous studies, it was concluded that breathing exercise training combined with health education had a more significant effect on improving lung function.

Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

References

- [1] Hu, Z.X., Zhao, T.T., Xing, T.T., *et al.* (2020) Effect of Rehabilitative Breathing Exercise Training in Hospitalized Patients with Pneumoconiosis. *South China Journal of Preventive Medicine*, **46**, 675-677.
- [2] Song, J.M. (2022) Analysis of Mindfulness-Based Decompression Therapy Combined with Breathing Exercises in Improving Lung Function in Patients with Pneumoconiosis. *Smart Health*, **8**, 175-178, 182.
- [3] Liu, M.X., Wen, Y.P. and Hao, C.Y. (2017) Effect of Rational Emotion Therapy Combined with Exercise Training on Pulmonary Function in Patients with Pneumoconiosis. *Hainan Medical Journal*, **28**, 2862-2864.
- [4] Gan, L. (2022) Effect of Rehabilitation Breathing Exercise Training on Blood Oxygen and Quality of Life in Patients with Pneumoconiosis. *Mother and Child World*, No. 36, 55-57.
- [5] Si, L.Z. (2020) Effect of Supportive Psychological Intervention on Adverse Mood and Sleep Quality in Patients with Pneumoconiosis. *World Journal of Sleep Medicine*, **7**, 462-463.