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Evaluation of the Effect of Comfort Nursing on Patients with Chronic Obstructive Pulmonary Disease Complicated with Respiratory Failure

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Abstract: *Objective:* To explore and analyze the effect of comfort nursing in patients with chronic obstructive pulmonary disease (COPD) complicated with respiratory failure. *Methods:* 60 patients with COPD and respiratory failure who were admitted to the Department of Respiratory Medicine of our hospital from May 2020 to May 2023 were selected as subjects of this study, and they were divided into comfort group and reference group by odd and even number draw method, with 30 cases in each group. The comfort group received comfort nursing, and the reference group received general nursing. The lung function performance and living conditions were compared between the groups. *Results:* Before the intervention, there was no statistically significant difference ($P > 0.05$) in terms of lung functions such as forced expiratory volume in the first second (FEV1), forced vital capacity (FVC), and the ratio FEV1/FVC between the groups; after the intervention, the lung functions of the comfort group were significantly better than those in the reference group ($P < 0.05$). Before the intervention, there was no statistically significant difference ($P > 0.05$) between the groups in terms of mental state, physical function, social situation, and spiritual aspects; after the intervention, the mental state, physical function, social situation, and spiritual aspects of the comfort group were significantly better than those of the reference group ($P < 0.05$). *Conclusion:* Comfort nursing care for COPD patients with respiratory failure can improve their lung function and quality of life, and achieve ideal nursing effects.

Keywords: Comfort care; Chronic obstructive pulmonary disease; Respiratory failure

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1. Introduction

Chronic obstructive pulmonary disease (COPD) is a chronic disease with a high prevalence rate. Once it develops, the damage to lung function is irreversible [1,2]. The disease is very damaging to the human body, and it cannot be completely cured at present. The main treatment principles are to control the disease and delay the damage to lung function [3,4]. Lung function damage in advanced COPD is very severe, at this time, it is easy to be complicated with respiratory failure. Respiratory failure means that lung function damage has developed to the end stage. The prognosis of COPD combined with respiratory failure is not optimistic, and it is a disease

stage with relatively high mortality [5,6]. COPD combined with respiratory failure requires comprehensive treatment. At the same time, providing nursing intervention to patients has a certain auxiliary effect on the treatment of the patient's condition [7]. Comfort nursing is an emerging nursing model, which creates comfortable treatment conditions for patients through nursing measures and promotes the recovery of diseases. This article aims to study and analyze the effect of comfort care in patients with chronic obstructive pulmonary disease complicated with respiratory failure.

2. General information and methods

1.1. General information

60 patients with COPD and respiratory failure who were admitted to the Department of Respiratory Medicine of our hospital from May 2020 to May 2023 were selected as the subjects of this study. They were divided into a comfort group and a reference group by drawing lots with odd and even numbers, with 30 cases in each group. There were 14 male and 16 female patients in the comfort group; the age range was 54–86 years old, with an average of 70.24 ± 1.52 years old; the course of disease was 1 to 6 years, with an average of 3.21 ± 0.56 years. The ratio of male to female patients in the reference group was 15:15; the age range was 55–86 years old, with an average of 70.46 ± 1.65 years old; the course of disease was 1 to 7 years, with an average of 3.51 ± 0.65 years. There was no statistically significant difference ($P > 0.05$) in the general information such as gender, age, and course of disease between the groups.

Inclusion criteria included COPD complicated with respiratory failure, and informed consent. Exclusion criteria were malignant tumors, abnormal mental state, and liver and kidney failure.

1.2. Methods

The reference group received general nursing care, which included disinfecting the ward, reducing the air flora index, injecting drugs, providing treatment measures, clearing the secretions of the respiratory tract, and maintaining the smoothness of the respiratory tract.

Comfort nursing in the comfort group included:

(1) Emotional intervention: In the face of long-term treatment and the decline of lung function, patients will have negative emotions. This negative mental state will increase the physical burden of patients and even affect the disease treatment. Therefore, it is highly necessary to provide emotional counseling to patients. Cases with good treatment effects can be explained to patients, so that patients can rebuild their confidence. The reasons for the patient's negative mentality should be inquired, and targeted suggestions can be made to the patient. During the patients' free time, they can watch the television and some films, and read books, in order to turn their attention to life instead of their illness.

(2) Oral cleaning: Fever is a common symptom of COPD. When the body is in a state of high fever, the oral mucosa will be relatively dry, and the patients' immunity in the disease stage is poor. In addition, the application of antibiotics will provide a source of protection for oral bacteria, thus it is necessary to give patients regular oral care, by cleaning the mouth with normal saline and keeping the mouth clean. If the patient has herpes on the lips, some gentian violet can be applied appropriately.

(3) Respiratory tract maintenance: COPD is a disease of the respiratory system. Under the stimulation of inflammation, the secretions of the patient's respiratory tract will increase, which will affect the patient's gas exchange. According to the patient's airway blockage, appropriate measures can be chosen to remove respiratory secretions. For patients with mild airway blockage, the patient's back can be patted to assist the patient to expel sputum; for patients with severe airway blockage, the

doctor's advice for nebulization treatment should be followed to humidify the airway and dilute the sputum, or a sputum suction machine can be used to directly aspirate and expel the sputum.

(4) Other interventions: If the sheets and bedding are soaked or contaminated, they should be replaced as soon as possible to prevent irritation to the patient's skin and mucous membranes, and skin infection. The patient should be in a comfortable lying position, and patients with poor self-care ability should be turned over every two hours to prevent the skin from being under pressure for a long time.

1.3. Observation indicators

The indicators below were observed between the groups.

(1) The pulmonary function performance between the groups was compared, including FEV1 (forced expiratory volume in the first second), FVC (forced vital capacity), and FEV1/FVC (the ratio of the forced expiratory volume in first second to the forced vital capacity).

(2) The living conditions between the groups were compared, and evaluated with the Brief Quality of Life Scale, including mental state, physical function, social situation, and spiritual aspects, with a score of 0–100.

1.4. Statistical analysis

SPSS21.0 statistical software was selected to process and analyze the data, the count data were expressed by the number of cases (n) and percentage (%), the χ^2 test was implemented, the measurement data were expressed by the mean ± standard deviation (SD), and the *t* test was implemented, $P < 0.05$ were considered as statistically significant.

3. Results

3.1. Comparison of lung function performance between the comfort group and the reference group

Before the intervention, the lung functions such as FEV1, FVC, and FEV1/FVC were compared between the groups, and there was no statistically significant difference ($P > 0.05$); after the intervention, the lung functions such as FEV1, FVC, and FEV1/FVC in the comfort group were significantly better than those in the reference group ($P < 0.05$) (**Table 1**).

Table 1. The comparison of pulmonary function between groups (mean ± SD)

Group	Number of cases	FEV1 (L)		FVC (L)		FEV1/FVC (%)	
		Before intervention	After intervention	Before intervention	After intervention	Before intervention	After intervention
Comfort group	30	1.34 ± 0.52	2.46 ± 0.74	1.53 ± 1.22	3.05 ± 0.34	61.22 ± 1.56	80.24 ± 1.66
Reference group	30	1.32 ± 0.49	2.06 ± 0.68	1.56 ± 1.18	2.51 ± 0.65	61.37 ± 1.42	67.52 ± 1.37
t value	-	0.1533	2.1800	0.0968	4.0320	0.3894	32.3698
P value	-	0.8787	0.0333	0.9232	0.0002	0.6984	0.0000

3.2. Comparison of the living conditions of the comfort group and the reference group

Before the intervention, there was no statistically significant difference ($P > 0.05$) between the groups in terms of mental state, physical function, social situation, and spiritual aspects; after the intervention, the living

conditions including the mental state, physical function, social situation, and spiritual aspects of the comfort group were significantly better than those of the reference group ($P < 0.05$), as shown in **Table 2**.

Table 2. The comparison of living conditions between groups (mean ± SD)

Group	Number of cases	Mental state		Physical function		Social situation		Spiritual aspects	
		Before intervention	After intervention	Before intervention	After intervention	Before intervention	After intervention	Before intervention	After intervention
Comfort group	30	68.12 ± 2.55	78.24 ± 2.61	67.28 ± 2.91	79.55 ± 2.67	69.57 ± 2.81	80.11 ± 2.57	67.51 ± 2.54	79.54 ± 2.31
Reference group	30	68.45 ± 2.61	71.22 ± 2.69	67.34 ± 2.87	72.51 ± 2.94	69.85 ± 2.61	73.51 ± 2.65	67.26 ± 2.58	72.55 ± 2.63
t value	-	0.4953	10.2585	0.0804	9.7091	0.3998	9.7926	0.3782	10.9374
P value	-	0.6222	0.0000	0.9362	0.0000	0.6907	0.0000	0.7067	0.0000

4. Discussion

Chronic obstructive pulmonary disease (COPD) is a progressive disease without cure. After the disease is controlled, it will relapse when stimulated by pathogenic factors, and the disease will become more severe every time and cause serious burden [8,9]. At present, the disease has become a major chronic disease, causing a huge disease burden to patients. With the progression of the disease, it can lead to lung failure or respiratory failure in the later stage. Respiratory failure will seriously affect the gas exchange of the body, when the body lacks oxygen supply and carbon dioxide cannot be exhaled normally, the internal environment will be in a disordered state, and other organs will be affected [10]. For the treatment of COPD complicated with respiratory failure, the first thing to do is keeping the airway open, using a ventilator to relieve the symptoms of respiratory limitation, and giving symptomatic and anti-inflammatory treatment at the same time, which can effectively control the patient's condition [11,12]. Nursing interventions for patients with this disease can improve the prognosis of patients. The routine nursing mode and specific nursing measures are relatively simple, and the intervention to the patient's condition is small [13]. Based on this, a new type of care is launched for patients, which is comfort care. This nursing model avoids the defects of conventional nursing, supplements and improves conventional nursing measures, and lastly forms a new nursing model [14]. This new comfort care nursing model appeases the patient's negative emotions, reduces the patient's inner burden, and increases patient's self-confidence; provides oral care by keeping the mouth clean, preventing oral infection, and maintaining the comfort of the patient's mouth; takes appropriate methods to keep the airway unobstructed and improve lung ventilation; manages the ventilator well, and replaces the corresponding sterile items in time to ensure the sterility of the operation and prevent infections in patients [15].

The experimental results are as follows: Before the intervention, the lung functions such as FEV1, FVC, and FEV1/FVC were compared among the groups, and there was no statistically significant difference ($P > 0.05$); after the intervention, the lung functions such as FEV1, FVC, and FEV1/FVC in the comfort group were all significantly better than the reference group ($P < 0.05$). Before the intervention, there was no statistically significant difference ($P > 0.05$) between the groups in terms of mental state, physical function, social situation, and spiritual aspects; after the intervention, the living conditions including the mental state, physical function, social situation, and spiritual aspects of the comfort group were significantly better than those of the reference group ($P < 0.05$). After the implementation of comfort care, the patient's pulmonary function indicators and lung ventilation status have been significantly improved, and the prognosis has been enhanced to a certain extent.

5. Conclusion

To sum up, the implementation of comfort nursing in patients with chronic obstructive pulmonary disease and respiratory failure can restore the patient's lung function and improve the quality of life significantly. This nursing program is worthy of wide application and promotion in clinic.

Disclosure statement

The author declares no conflict of interest.

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