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Application Value of Early Comprehensive Rehabilitation Nursing in Patients with Occupational Asthma

Wen Zhong

Health Management Center, Deyang People's Hospital, Deyang, China
Email: 272512138@qq.com

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Abstract

Background Occupational asthma is a type of asthma caused by exposure to asthma-causing substances in an occupational setting. Its incidence is closely related to the degree of industrial development, but also related to the nature of asthma. In some specific industries, such as workers who are exposed to asthmatic isocyanates for a long time, the incidence of occupational asthma can reach 5% - 10%, and the incidence of occupational asthma can even reach 50% or higher among workers engaged in the detergent industry who are in contact with proteolytic enzymes for a long time. Objective To analyze the clinical value of early comprehensive rehabilitation nursing for patients with occupational asthma, methods a total of 48 patients with occupational asthma who were admitted from January 2020 to December 2022 were divided into control group and study group by random number table method The disappearance time of chest tightness and shortness of breath, the disappearance time of wheezing and cough, and the FEV1, forced vital capacity (FVC) and peak expiratory flow (PEF) indexes before and after treatment were compared between the two groups after nursing, the disappearance time of clinical symptoms in the study group was shorter than that in the control group, and the levels of FEV1, FVC and PEF were higher than those in the control group, and the $P < 0.05$ was significantly improved.

Keywords

Occupational Asthma, Early Comprehensive Rehabilitation Nursing, Application Value

1. Introduction

As a common occupational disease, occupational asthma (OA) mainly refers to a

class of diseases induced by exposure to certain substances or special conditions in the occupational environment, which mainly manifests as airway hyperresponsiveness, reversible gas limitation and airway inflammation. Due to the reversible nature of OA, it is generally believed that asthma symptoms can be improved after patients are weaned off asthma-causing substances. At present, the main clinical treatment of occupational asthma is nebulized glucocorticoids, etc., which have the effect of local effect, simple operation, and effective improvement of patients' clinical symptoms [1]. However, in order to improve the effectiveness of treatment, it is often necessary to cooperate with effective nursing measures during the treatment process. This article analyzes the application value of early comprehensive rehabilitation nursing in the treatment of patients with occupational asthma, as detailed below.

2. Information and Methods

2.1. General Information

Taking January 2020 to December 2022 as the time period, 48 OA patients who received treatment in our hospital were selected as the subjects of this study, and the selected data were in line with the Declaration of Helsinki. With the assistance of the random numerical table method, they were divided into control group and study group, with 24 cases in each group. The Chi-square test was carried out with the assistance of SPSS25.0 data statistics software, and the P value of each item was higher than 0.05, which showed that there was no statistical difference in the general data, and the observation indicators could be compared. See Table 1 for details.

Inclusion criteria: All the selected cases met the diagnostic criteria for OA in the Diagnostic Criteria for Occupational Asthma (GBZ 57-2008), and all of them indicated a history of prolonged exposure to strains in occupational activities or inhaled large doses of smoke, gas and other irritating chemicals to the respiratory tract in a short period of time; chest tightness and other symptoms, and the occurrence and development of asthma symptoms are closely related to exposure to strain, and patients are aware of the relevant matters of this study and voluntarily participate in the research process.

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

General information		Study groups	Control group	t/x^2	P
gender	man	13	15	0.343	>0.05
	woman	11	9		
Average age		56.21 ± 6.54	56.18 ± 6.61	0.016	>0.05
Mean course of illness		8.21 ± 1.25	8.28 ± 1.27	0.192	>0.05
Contact strain	Toluene diisocyanates	10	9	0.105	>0.05
	Polyamines	9	10		
	Phthalic anhydride	5	5		

Exclusion Criteria: confirmed asthma caused by other pathogens, acute exacerbation, withdrawal during the study, or failure of follow-up.

2.2. Methods

After the patients in both groups were diagnosed with OA, they were inhaled with vantoline aerosol and fluticasone propionate aerosol in combination with the patient's condition, and at the same time oral theophylline sustained-release tablets, Shunerning and other drugs. On the basis of the care of the patients in the control group, the patients in the study group were combined with early comprehensive rehabilitation nursing, and the nursing content included:

2.2.1. Early Rehabilitation and Health Education

In order to improve the enthusiasm and compliance of patients to participate in early comprehensive rehabilitation nursing, nursing staff can implement health education by distributing health manuals, face-to-face health education, and pushing WeChat short videos. How to prevent and treat it correctly, etc., and at the same time encourage patients to raise their doubts, nursing staff should answer them patiently, and at the same time pay attention to observe the patient's bad habits and behaviors, and correct them in time. For patients with a high level of education, brochures or short videos can be directly distributed, so that patients can take the time to watch, fully understand OA, and realize the importance of rehabilitation nursing, so as to better cooperate with nursing staff to participate in rehabilitation training.

2.2.2. Early Psychological Rehabilitation Care

Understand the patient's psychological state in the form of conversation, pay attention to the assessment of the patient's psychological state while talking, be patient when communicating with the patient, and the language should be gentle, guide the patient to actively share his personal psychological state and various factors that are easy to affect his or her own psychology in daily life, and the nursing staff actively use nursing professional knowledge to carry out psychological counseling for the patient and gradually alleviate his bad mood. In particular, during the treatment process, the nursing staff should provide support and encouragement to the patient to help build confidence in recovery.

2.2.3. Early Pulmonary Rehabilitation Care

1) Carry out expectoration guidance and help for patients, for patients with viscous sputum, the means of humidifying the airway can be applied, and at the same time remind patients to drink more water to dilute sputum and promote sputum discharge; For patients in status asthmaticus, low-flow oxygen can be given, or patients can be allowed to rest at the table, and the ventilator parameters can be adjusted according to the patient's lung function and condition, and whether there is resistance or irritability in the process. 2) Participate in sports training appropriately. Patients with OA in the stable period can appropriately participate in aerobic exercise, and the exercise methods can choose such as

climbing, swimming, tai chi, walking, etc., and remind patients to pay attention to controlling the duration, amount and frequency of exercise, and not to participate in excessive intensity or intense exercise. 3) In order to better promote the recovery of patients, patients should also be instructed to participate in breathing training during the treatment period, and common breathing training methods include pursed lip breathing and candle blowing training Abdominal breathing training, etc., the training technique of pursed lip breathing is to remind the patient to choose the supine position, contract his lips to make it look like a fish mouth, and then slowly inhale and exhale through the nose, and the duration of each training is controlled at about 3 min, and the training can be done 3 times a day. The training skills of blowing candles are: during the training, the patient takes a sitting position, adjusts his mouth to the same level as the candle placed on the table, and the distance between the mouth and the candle is controlled at about 20 cm, and then the patient interferes with the candle flame in the form of breathing, reminds the patient to control his own breathing rate according to the swing frequency of the candle, and gradually increases the distance between the patient and the candle according to the patient's recovery, training 1 time a day, and each training lasts about 15 min. The technique of abdominal breathing is as follows: the patient is in a supine position during the exercise, and adjusts the position according to his own situation until he feels comfortable, then relaxes the body, puffs up the abdomen, places his hands on the abdomen and presses the abdomen while exhaling, each training session lasts 15 minutes, 2 times per session.

2.3. Observe Indicators

1) The disappearance time of clinical symptoms was compared between the two groups, including the disappearance time of chest tightness and shortness of breath, the disappearance time of wheezing and the disappearance time of cough.

2) The pulmonary function indexes of the two groups were compared between the two groups before and after nursing. Pulmonary function indexes are mainly measured with the help of a portable pulmonary function meter, which includes forced expiratory volume in one second (FEV1), forced vital capacity (FVC), and peak expiratory flow (PEF), and is repeated three times, and the final result is the average of the three times [2].

2.4. Statistical Methods

Statistics and analysis of data With the help of SPSS25.0 data statistics software, the indexes related to counting in the general data and observation indicators are expressed as percentages, the statistics of the results are expressed by x^2, and the indicators related to measurement are expressed by the mean, and the test is carried out with t, and when the P value is lower than 0.05, the difference is obvious.

3. Results

3.1. Comparison of the Disappearance Time of Clinical Symptoms between the Two Groups

During the treatment period, with different nursing measures, the disappearance time of each clinical symptom in the study group was shorter than that in the control group, and the P < 0.05 was 0.05, as shown in Table 2.

3.2. The Pulmonary Function Indexes of the Two Groups Were Compared before and after Nursing

The observation showed that there was no statistically significant difference in FEV1, FVC and PEF between the two groups before nursing (P > 0.05), and the lung function of the two groups improved after different nursing measures, but the levels of FEV1, FVC and PEF in the study group were higher than those in the control group, and the P < 0.05 was shown in Table 3.

4. Discussion

According to domestic and foreign research data, the incidence and epidemic trend of occupational asthma are related to the occupational environment, the type and concentration of asthma-causing substances, working years, gender, age and other factors. In some industries, such as chemicals, pesticides, footwear and other occupational environments, the types and concentrations of asthma-causing substances are higher, so the incidence of occupational asthma is also higher. In addition, some studies have also found that female workers have a higher incidence than male workers, which may be related to higher susceptibility

Table 2. Comparison of the disappearance time of clinical symptoms between the two groups [($\bar{x} \pm s$), d].

Constituencies	n	Chest tightness and shortness of breath disappear time	The time it takes for the cough to disappear	Wheezing disappearance time
Study Groups	24	3.15 ± 0.74	5.15 ± 0.68	6.21 ± 1.65
Control group	24	5.08 ± 0.94	6.58 ± 0.78	8.45 ± 1.75
t	/	7.903	6.770	4.562
P	/	<0.05	<0.05	<0.05

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

Constituencies	n	FEV1 (L)		FVC (L)		PEF (L/s)	
		Before treatment	After treatment	Before treatment	After treatment	Before treatment	After treatment
Study Groups	24	1.42 ± 0.25	2.59 ± 0.72	2.38 ± 0.21	3.08 ± 0.75	4.21 ± 0.35	6.54 ± 0.32
Control group	24	1.41 ± 0.27	2.27 ± 0.56	2.41 ± 0.18	2.51 ± 0.81	4.18 ± 0.36	5.86 ± 0.28
t	/	0.133	1.719	0.531	2.530	0.293	7.835
P	/	>0.05	<0.05	>0.05	<0.05	>0.05	<0.05

to asthma-causing substances in women. There are also differences in different countries and regions. The higher incidence of occupational asthma in some developed countries may be related to the earlier industrial development and earlier use and production of asthma-causing substances in these countries. In some developing countries, the incidence of occupational asthma is also on the rise due to the acceleration of industrial development and the increase in the use and production of asthma-causing substances. The clinical manifestations of occupational asthma vary greatly, and there is a clear or even fixed temporal relationship between occupational asthma and work, with most patients developing the disease after work, and a few patients occurring after work or at night, but the symptoms are reduced or disappeared in the second morning, and the above conditions are repeated after work [3]. At present, the common drugs for the treatment of OA in clinical practice are control drugs and relieving drugs, the former is mainly to control clinical symptoms through anti-inflammatory, glucocorticoids, systemic hormones, leukotriene modulators, etc., while the latter is common with fast-acting inhalation and short-acting oral $\beta 2$ receptor agonists, short-acting theophylline and other drugs. However, in order to improve the treatment effect in the process of drug therapy, effective nursing measures are needed, but the effect of conventional nursing measures is not good, so the implementation of early comprehensive rehabilitation care is recommended clinically [4].

In the above section, the effect of early comprehensive rehabilitation nursing in patients with occupational asthma was analyzed, and the results showed that compared with patients with conventional nursing, the effect of early comprehensive rehabilitation nursing in improving patients' clinical symptoms and lung function was more significant. The reason for this is that early rehabilitation and health education help patients correctly recognize the disease, understand the importance of rehabilitation training, implement psychological rehabilitation nursing to help patients alleviate negative emotions, and implement pulmonary rehabilitation training, exercise nursing, respiratory function training, etc., to help patients improve their system, improve respiratory function, improve lung function, and better promote the improvement of patients' conditions [5]. However, there are few clinical studies on occupational asthma rehabilitation nursing, mainly referring to the nursing measures of asthma patients, so it is necessary to implement targeted rehabilitation nursing measures in combination with the disease characteristics of occupational asthma.

In summary, patients with occupational asthma can improve their lung function in the process of treatment with early comprehensive rehabilitation care, although there are few studies at present, but it is believed that with the continuous development of clinical medicine and the importance of occupational asthma, this research will be increasing.

Conflicts of Interest

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

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