The Value of Cefoperazone Sulbactam and Amiloride Hydrochloride in the Treatment of Chronic Obstructive Pulmonary Disease

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Abstract: Objective: To observe the effect of different drug regimens in the treatment of chronic obstructive pulmonary disease (COPD). METHODS: Sixty-two patients with COPD admitted from 2020.9 to 2022.12 were divided into two equal groups, group A and group B. Thirty-two patients each were treated with cefoperazone sulbactam, while group B was treated with ambroxol hydrochloride. Results: The total effective rate in Group B reached 93.55%, higher than 67.74% in Group A (X^2=5.063, P=0.024<0.05). The time to disappearance of disease symptoms and hospital stay were shorter in Group B than in Group A. The difference reached a significant level (P < 0.05). Conclusion: Clinical treatment of COPD patients with amiloride hydrochloride combined with cefoperazone sulbactam as early as possible is effective and worth promoting.

Keywords: Chronic Obstructive Pulmonary Disease; Cefoperazone Sulbactam; Ambroxol Hydrochloride; Effect Observation

Introduction

COPD is a common disease in respiratory medicine, and middle-aged and elderly people are the most prevalent group of this disease. The prevalence of COPD increases with age, and COPD is more likely to be complicated by lung infection. The quality of life is certainly reduced. The clinical treatment of COPD is often pharmacological. Ambroxol hydrochloride is a commonly used expectorant that not only promotes effective sputum excretion, but also improves lung function, which in turn reduces symptoms and controls the disease more significantly. In recent years, it has been reported that single-agent treatment is difficult to achieve the desired effect, so it is recommended that patients diagnosed with COPD be treated with a combination of drugs [1]. In this paper, data from 62 patients were included and grouped together to compare single and combination drug therapy, and the following analysis is reported.

1. Data and methods

1.1 General information

62 patients with COPD were selected as study subjects, admitted from 2020.10 to 2022.8. Inclusion criteria: ① meeting the diagnostic criteria of COPD, confirmed by imaging; ② clear consciousness, good compliance and signed informed consent. Exclusion criteria: ① those with organic lesions of liver, kidney and other organs; ② those with severe allergies; ③ those with incomplete clinical data. Divided into two groups according to the envelope method as follows.

Group A (n=31): (M/F, cases) 18/13, age range 51-82 years, mean (62.85±5.64) years, duration of disease 4-21 years, mean (8.96±2.26) years.

Group B (n=31): (M/F, cases) 16/15, age 50-84 years, median age (63.52±5.70) years, disease duration range 5-20 years,

mean (9.06±2.11) years.

The above information of the patients between the groups showed a balance, i.e. the differences did not reach the level of significance (P > 0.05) and were comparable.

1.2 Methods

Patients in all groups were given basic symptomatic treatment, including cough suppression, expectoration, anti-infection and respiratory function exercises. The following therapeutic measures were added to each group.

(1) Group A: 2g cefoperazone sulbactam + 100ml saline, intravenous, 2 times/d.

(2) Group B: In addition to the treatment in Group A, patients were treated with Ambroxol Hydrochloride, which was taken orally after meals, 1~2 tablets/time, 3 times/d.

Patients in all groups were treated continuously for 7d.

1.3 Observation index

The following criteria were used to determine the efficacy of the treatment: the symptoms and signs related to the disease disappeared completely after treatment, the X-ray examination indicated that the lung shadow was well absorbed, and the white blood cell (WBC) count returned to the normal range, which was regarded as effective. If the disease does not meet the criteria of significant or effective, or deteriorates after treatment, the disease is considered ineffective. The total effective rate is the proportion of the total number of effective and apparent cases in the group.

1.4 Statistical processing

SPSS26.0 software was used to process the data. The mean age and time were expressed as t-test; the effective rate was expressed as % and calculated by X^2. Conditions for comparable data to be met: P < 0.05.

2. Results

2.1 Clinical efficacy

After assessment and judgment, it was confirmed that there were 22 cases and 7 cases in Group B who met the judgment criteria of significant and effective respectively, and 13 cases and 8 cases in Group A in that order, and the overall treatment effect in Group B was better than that in Group A (P < 0.05), Table 1.

Table 1 Comparison of patient outcomes between groups[n,(%)]

Group（n）	Visible effect	Effective	Invalid	Total validity
Group B（31）	22（70.97）	7（21.88）	2（6.45）	29（93.55）
Group A（31）	13（41.93）	8（25.81）	10（32.26）	21（67.74）
X^2	4.199	0.000	5.063	5.063
P	0.040	1.000	0.024	0.024

2.2 Regression of symptoms and length of hospital stay

Patients in group A had earlier regression of all clinical symptoms and shorter hospital stay than group A. The data were significantly different (p < 0.05), Table 2.

Table 2 Comparison between groups in terms of resolution of disease symptoms and length of stay in hospital $(\bar{x} \pm s, d)$

Group（n）	Normal body temperature	Cough	Rales in the lungs	Hospitalisation
Group B（31）	3.11±1.25	1.13±0.34	2.54±0.81	10.25±2.09
Group A（31）	6.28±1.85	2.74±0.32	4.97±0.84	15.26±2.54
t	7.905	19.199	11.594	8.441
P	0.000	0.000	0.000	0.000

3. Discussion

Older people are generally less fit, have lower resistance and may have a combination of underlying conditions that put them at higher risk of developing COPD, reducing their own efficiency and placing a financial burden on their families and society. In addition, many COPD patients may have a combination of infections during the exacerbation period, which makes it more difficult to control the disease and increase medical costs, and causes more damage to the patient's body. In the case of COPD patients, specialist treatment seeks to relieve symptoms as soon as possible, curb the occurrence of pulmonary impairment, enhance self-care and improve quality of life [2].

In this study, the time to normalise body temperature, cough and rales disappeared in group B was (3.11±1.25) d, (1.13±0.34) d and (2.54±0.81) d respectively, which were earlier than those in group A (6.28±1.85) d, (2.74±0.32) d and (4.97±0.84) d. The difference was significant, suggesting that the symptoms of the disease improved in group B after the combined drug treatment. Patients obtained better improvement in disease symptoms after the combination treatment. Although spoperidone sulbactam belongs to the category of antibacterial drugs and has a broad spectrum of antibacterial properties, it can reduce patients' symptoms in the short term, but it is easy to be resistant to long-term use and its long-term efficacy is unsatisfactory, so its promotion is limited. Ambroxol hydrochloride is a commonly used expectorant drug whose mechanism of action is to dilute sputum, reduce its viscosity, improve the efficiency of coughing and expectoration, and reduce the adverse effects of airway obstruction on the respiratory status. This drug has the medicinal effect of restoring the damaged airway cilia function in COPD patients, enhancing the transport capacity and allowing greater sputum expulsion [3]. In addition, amiloride touches the human epidermal vesicular epithelium and induces the synthesis of surface active substances, which in turn better improves the lung function of COPD patients and reduces the risk of problems such as infections. The overall effective rate of treatment in group B reached 93.55%, higher than 67.74% in group A, further confirming the effectiveness of the combination with the data.

In conclusion, clinical treatment of COPD patients with amiloride hydrochloride combined with cefoperazone sulbactam as early as possible can alleviate patients' symptoms more rapidly and improve the efficacy, which is worth promoting.

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