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# Observation of the Effect of Low Molecular Weight Heparin Calcium Combined with Acetylcysteine in the Treatment of Idiopathic Interstitial Pneumonia

**Rong Fan, Wei Xiao, Weihua Hu, Zhu Wu***

**Jingzhou First People's Hospital, Jingzhou 434000, China.**

***Abstract:*** **Objective:** To analyze the effect of low molecular weight heparin calcium combined with acetylcysteine in the treatment of patients with idiopathic interstitial pneumonia. **Methods:** The subjects selected for this study were patients with idiopathic interstitial pneumonia admitted to our hospital from June 2020 to June 2021, with a total of 56 cases. They were divided into control group and experimental group by random number table method. The control group was treated with acetylcysteine (28 cases), and the experimental group was treated with low molecular weight heparin calcium on the basis of the control group (28 cases). The treatment effects of the two groups were compared. **Results:** There were significant differences in the effective rates of treatment between the two groups, and the experimental group was higher ($P<0.05$). There were significant differences in pulmonary function indexes between the two groups, among which the experimental group was higher ($P<0.05$). **Conclusion:** Low molecular weight heparin calcium + acetylcysteine is effective in the treatment of patients with idiopathic interstitial pneumonia, and this combined treatment method can be promoted.

***Keywords:*** Low Molecular Weight Heparin Calcium; Acetylcysteine; Idiopathic Interstitial Pneumonia; Treatment Response Rate; Pulmonary Function Index

## Introduction

Idiopathic interstitial pneumonia is a diffuse lung parenchymal disease of unknown cause. The symptoms of the disease include progressive shortness of breath and dry cough. The symptoms of the disease include progressive wheezing and dry cough. The disease is characterized by restrictive ventilation dysfunction and chronic progressive diffuse pulmonary fibrosis[1]. If the patient does not take timely and effective treatment, it can lead to progressive dyspnea, which in turn leads to respiratory failure, resulting in death of the patient. The disease is mainly treated with drugs in clinical, and anti-inflammatory drugs are often used. For this reason, the subjects selected for this study were patients with idiopathic interstitial pneumonia admitted to our hospital from June 2020 to June 2021, with a total of 56 cases. To analyze the effect of low molecular weight heparin calcium combined with acetylcysteine in the treatment of patients with idiopathic interstitial pneumonia. The results of the study are detailed below.

## 1. Materials and methods

## 1.1 Basic information

The subjects selected for this study were patients with idiopathic interstitial pneumonia admitted to our hospital from June 2020 to June 2021, with a total of 56 cases. They were divided into control group and experimental group by random number table method. The control group was treated with acetylcysteine (28 cases), and the experimental group was treated with low molecular weight heparin calcium on the basis of the control group (28 cases). The age of the experimental group was 26-67 years old, with an average of (47.54±3.54) years old. The age of the control group was 27-66 years old, with an average age of (47.43±2.54) years. The analysis of the basic data of the two groups of patients showed that there was no significant difference in the age of the patients ($P>0.05$).

## 1.2 Methods

## 1.2.1 Control group

This group was treated with acetylcysteine. The patients were treated with oxygen therapy, antiasthmatic, antispasmodic and phlegm-relieving treatment. The patients were additionally treated with acetylcysteine effervescent tablets (manufacturer: Atlantic Laboratories; approval number: H20070281; Specification: 600 mg × 4s), 1 tablet each time, 2 times a day, dissolved in warm water to take. The patient was treated for 3 months.

## 1.2.1 Experimental group

On the basis of the control group, this group was treated with low molecular weight heparin calcium, and the patients were given low molecular weight heparin calcium injection (production unit: Shenzhen Saibaoer Bio-Pharmaceutical Co., Ltd.; approval number: Guoyaozhunzi H20060191; specification: 0.5ml: 5000AXa units) subcutaneous injection treatment, 1ml once a day, 2 times a day, the patient was treated for 3 months.

## 1.3 Effect standard

(1) Evaluate the therapeutic effect according to the improvement of the patient's symptoms, markedly effective means that the symptoms disappear, effective means that the symptoms are improved ideally, and invalid means that the symptoms have not improved. Calculation method: (markedly effective + effective)/total number of cases × 100%.

(2) Observe the pulmonary function indexes of the patients after treatment, including FEV1, FVC, and FEV1/FVC.

## 1.4 Statistical methods

The data obtained in the study were processed by SPSS 23.0 software. ($\bar{x}$ ±s) is used to represent measurement data, using t test; (%) is used to represent count data, using ($x^2$) test. When the calculated P<0.05, it was suggested that there was a significant difference between the compared subjects.

## 2. Results

## 2.1 Comparison and analysis of the effective rate of treatment between the two groups

There were significant differences in the effective rates of treatment between the two groups, and the experimental group was higher (P<0.05). See Table 1 for details.

**Table 1 Comparative analysis of the effective rate of treatment between the two groups [n, (%)]**

| Groups | Number of cases | Markedly effective | Effective | Invalid | Treatment effective rate (%) |
|---|---|---|---|---|---|
| Experimental group | 28 | 19（67.86%） | 6（21.43%） | 3（10.71%） | 89.29%（25/28） |
| Control group | 28 | 12（42.86%） | 5（17.86%） | 11（39.29%） | 60.71%（17/28） |
| $\chi^2$ | - | 3.541 | 0.113 | 6.095 | 6.095 |
| *P* | - | 0.060 | 0.737 | 0.014 | 0.014 |

## 2.2 Comparative analysis of pulmonary function indexes between two groups

There were significant differences in pulmonary function indexes between the two groups, among which the experimental group was higher (P<0.05). See Table 2 for details.

**Table 2 Comparative analysis of pulmonary function indicators between the two groups ( $\bar{x} \pm s$ )**

| Groups | Number of cases | $FEV_1$（L） | FVC（L） | $FEV_1$/FVC（%） |
|---|---|---|---|---|
| Experimental group | 28 | 1.95±0.34 | 2.54±0.32 | 67.65±5.43 |
| Control group | 28 | 2.54±0.56 | 3.45±0.42 | 61.24±7.64 |
| *t* | - | 4.765 | 9.119 | 3.619 |
| *P* | - | 0.001 | 0.001 | 0.001 |

# 3. Discussion

Idiopathic interstitial pneumonia is a common clinical disease, which is caused by chronic inflammation caused by diffuse hyperplasia and fibrosis of pulmonary interstitial connective tissue. Relevant studies have pointed out that the increase of reactive oxygen species in patients can cause damage to the body's biofilm system and cause intracellular oxidative phosphorylation disorders, thereby promoting the progression of pulmonary interstitial fibrosis. Acetylcysteine is the precursor of glutathione, which can scavenge oxygen free radicals through reduced glutathione, increase the content of glutathione in the alveoli of patients, and obtain antioxidant effects. The significance of adhesion is improved, and the hypersecretion of airway mucus cells is reduced [2].

Low molecular weight heparin calcium is an anticoagulant and antithrombotic drug, which can play an anti-inflammatory and block effect on cell proliferation. Some studies have pointed out that low molecular weight heparin calcium can inhibit leukocyte adhesion and neutrophil chemotaxis to block the release of various inflammatory mediators, thereby playing an anti-inflammatory effect. The drug releases exogenous glucopolyamine and increases the anionic charge of the vascular wall to inhibit the proliferation of mesangial cells, thereby playing an anti-pulmonary fibrosis effect [3]. In the results of this study, there was a significant difference in the effective rate of treatment between the two groups, and the experimental group was higher (P<0.05). It is suggested that low molecular weight heparin calcium + acetylcysteine treatment can promote the therapeutic effect of patients. There were significant differences in pulmonary function indexes between the two groups, among which the experimental group was higher (P<0.05). It shows that low molecular weight heparin calcium + acetylcysteine treatment can improve the pulmonary function indexes of patients. It can be seen that the treatment of low molecular weight heparin calcium + acetylcysteine can play a synergistic effect, which can further improve the therapeutic effect of patients, thereby improving their related symptoms and promoting their recovery.

In conclusion, low molecular weight heparin calcium + acetylcysteine is effective in the treatment of patients with idiopathic interstitial pneumonia, and this combined treatment method can be promoted.

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