

Effect Analysis of Jinsang Sanjie Pill Combined with Microwave Physiotherapy in the Treatment of Chronic Laryngitis

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Abstract: Objective: To evaluate the effect of Jinsang Sanjie pill combined with microwave physiotherapy on patients with chronic laryngitis. **Methods:** 150 patients with chronic laryngitis in the outpatient department of Otorhinolaryngology of Zhongshan Nanlang Hospital from January 2019 to January 2021 were selected and randomly divided into two groups, 75 cases in each group. The control group was treated with microwave physiotherapy, and the observation group was treated with Jinsang Sanjie pill combined with microwave physiotherapy. **Results:** The total effective rate of the observation group (98.67%) was higher than that of the control group ($P < 0.05$). The whole blood high shear viscosity (3.25 ± 0.23) MPa·s, whole blood low shear viscosity (6.33 ± 0.45) MPa·s, plasma viscosity (1.50 ± 0.25) MPa·s and erythrocyte sedimentation rate (15.39 ± 3.46) mm/h in the observation group were lower than those in the control group, with statistical significance ($P < 0.05$). The longest pronunciation time (19.88 ± 6.39) s and dysphonia index (1.95 ± 1.42) of the observation group were higher than those of the control group, and the fundamental frequency perturbation (0.32 ± 0.05), amplitude perturbation (1.33 ± 0.12), and noise to harmonic ratio (0.11 ± 0.03) of the observation group were lower than those of the control group, with statistical significance ($P < 0.05$). **Conclusions:** The curative effect of Jinsang Sanjie pill combined with microwave physiotherapy is accurate for patients with chronic laryngitis, which is worthy of promotion.

Keywords: Chronic laryngitis; Jinsang Sanjie pill; Microwave physiotherapy; Hemorheology index; Voice acoustic analysis test

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1. Introduction

Chronic laryngitis (CL) belongs to the inflammation of larynx. It is a common disease in otolaryngology. The disease is an important factor leading to hoarseness. The high incidence group of chronic laryngitis is teachers, singers, salesmen, etc. The common symptoms of the disease are dry throat, hoarseness, etc.^[1,2]. In order to evaluate the effect of Jinsang Sanjie pill combined with microwave physiotherapy in the treatment of chronic laryngitis, 150 patients with chronic laryngitis in our hospital were selected for this study.

2. Materials and Methods

2.1 Baseline Information

150 patients with chronic laryngitis in the outpatient

department of Otorhinolaryngology were selected. The patients were treated from January 2019 to January 2021. They were randomly divided into control group and observation group. The control group (75 cases) was treated with microwave physiotherapy, and the observation group (75 cases) was treated with Jinsang Sanjie pill combined with microwave physiotherapy. In the control group, there were 40 female patients and 35 male patients; the average age was (46.32 ± 6.32) years old; the course of disease ranged from 6 months to 11 years, with an average of (4.28 ± 1.33) years. In the observation group, there were 38 female patients and 37 male patients; the average age was (46.58 ± 6.28) years old; the course of disease ranged from 8 months to 10 years, with an average of (4.55 ± 1.29) years. There was no significant difference between

the two groups ($P > 0.05$).

Inclusive criteria: (1) The duration of disease was more than 2 months; (2) All patients had hoarseness, dry throat and pain; (3) The patient's data were complete.

Exclusion criteria: (1) Patients with allergic constitution; (2) Patients with mental diseases; (3) Patients with severe cerebrovascular disease.

2.2 Method

In the control group, patients were treated with microwave physiotherapy intervention, using microwave therapeutic instrument (manufacturer: Nanjing Yigao Microwave System Co., Ltd., model: eco-100), adjusting the frequency to 2450MHz, adjusting the power to 15W ~ 20W. The treatment time was 10 minutes.

The observation group was treated with Jinsang Sanjie pills (manufacturer: Manufacturer: Xi'an Beilin Pharmaceutical Co., Ltd., approval number: z61020024, specification: 0.4g * 18 pills * 1 plate) combined with microwave physiotherapy, take Jinsang Sanjie pills orally, twice a day, 0.8g ~ 1.6g each time.

2.3 Observation Index

(1) The total effective rate of two groups of patients with chronic laryngitis was calculated. Effect evaluation criteria: after treatment, hoarseness and other symptoms disappeared completely, and the sound time was more than 20 seconds; after treatment, hoarseness and other clinical symptoms and signs disappeared, and it was effective when the sound time was more than 15 seconds; patients after treatment did not meet the above conditions for invalid.

(2) The changes of hemorheology indexes of the two groups were calculated, including whole blood high shear viscosity, whole blood low shear viscosity, whole blood reduced viscosity, plasma viscosity, ESR and whole blood reduced viscosity.

(3) The voice acoustic analysis test results of two groups of patients with chronic laryngitis were calculated, and the patients were tested with atmos voice acoustic analysis test software, including the longest pronunciation time, dysphonia index, fundamental frequency perturbation, amplitude perturbation and noise to harmonic ratio.

2.4 Statistical Processing

Spss23.0 statistical software was used to process the data of the two groups of patients with chronic laryngitis. The expression of the total effective rate was (%). The changes of hemorheology indexes and the results of voice acoustic analysis were expressed by (mean \pm standard deviation), and the differences were expressed by chi square test and t test. If there is statistical significance, then ($P < 0.05$).

3. Results

3.1 The Total Effective Rate of Two Groups of Patients with Chronic Laryngitis was Compared

The total effective rate of the observation group was higher than that of the control group ($P < 0.05$). See Table 1.

3.2 Comparison of Hemorheological Indexes between Two Groups of Patients with Chronic Laryngitis

The whole blood high shear viscosity, whole blood low shear viscosity, plasma viscosity and ESR of the observation group were lower than those of the control group ($P < 0.05$). See Table 2.

3.3 Comparison of Voice Acoustic Analysis Results of Two Groups of Patients with Chronic Laryngitis

The longest phonation time and dysphonia index of the observation group were higher than those of the control group, and the fundamental frequency perturbation, amplitude perturbation and noise to harmonic ratio of the observation group were lower than those of the control group ($P < 0.05$). See Table 3.

Table 1. Comparison of total effective rate between groups {n (%)}

Group	Remarkable effect	Effective	Invalid	Total effective rate
Observation group (n = 75)	31 (41.33)	43 (57.33)	1 (1.33)	74 (98.67)
Control group (n = 75)	20 (26.67)	46 (61.33)	9 (12.00)	66 (88.00)
χ^2 value	-	-	-	6.8571
P value	-	-	-	0.0088

Table 2. Comparison of hemorheological indexes between groups $\{\bar{x} \pm s\}$

Group	Whole blood high shear viscosity (MPA·s)	Whole blood low shear viscosity (MPA·s)	Whole blood reduced viscosity (MPA·s)	Plasma viscosity (MPA·s)	ESR (mm / h)
Observation group (n = 75)	3.25±0.23	6.33±0.45	7.51±3.26	1.50±0.25	15.39±3.46
Control group (n = 75)	4.12±0.35	7.25±0.55	8.33±3.12	1.60±0.25	20.31±4.48
T value	17.9901	11.2117	1.5737	2.4494	7.5272
P value	0.0000	0.0000	0.1177	0.0155	0.0000

Table 3. Comparison of voice acoustic analysis test results between groups $\{\bar{x} \pm s\}$

Group	Maximum pronunciation time (s)	Dysphonia index	Fundamental frequency perturbation (%)	Amplitude perturbation (%)	Noise to harmonic ratio (%)
Observation group (n = 75)	19.88±6.39	1.95±1.42	0.32±0.05	1.33±0.12	0.11±0.03
Control group (n = 75)	15.33±5.28	1.44±1.63	0.40±0.11	1.41±0.26	0.19±0.05
T value	4.7536	2.0430	5.7338	2.4194	11.0227
P value	0.0000	0.0428	0.0000	0.0168	0.0000

4. Discussion

Chronic laryngitis belongs to the category of “slow laryngitis” in traditional Chinese medicine, which is caused by improper use of vocal cords for a long time. Chronic laryngitis patients with pharyngeal mucosa congestion, tissue hyperplasia, some patients with suppurative problems [3-5]. Microwave physiotherapy is a common treatment method in otorhinolaryngology. When the microwave irradiates the diseased part, the diseased tissue will heat up rapidly. When the temperature of a certain part exceeds a certain threshold, the human body will produce self-protection reaction, that is, strengthening the blood supply to the part, improving the blood circulation conditions of the diseased part, and increasing the nutrition of the diseased part, so as to open up the capillaries blocked by compression, make the blood circulation of this part tend to be normal, and make the inflammation disappear gradually. Microwave itself has the characteristics of sterilization, coupled with the thermal effect of sterilization, so as to achieve the purpose of dredging collaterals and anti-inflammatory [6-9]. Jinsang Sanjie pill is a traditional Chinese medicine preparation, which contains safflower, peach kernel, Fritillaria, Jineijin, honeysuckle, dandelion, Scrophularia, isatis root, Ophiopogon japonicus and other ingredients. Safflower has the effect of promoting blood

circulation and removing blood stasis, peach kernel has the effect of removing carbuncle, breaking blood stasis, and improving gastrointestinal function. Ophiopogon japonicus has the effect of moistening dryness, nourishing Yin, moistening lung and promoting body fluid. Combined with Fritillaria can better relieve the cough symptoms of patients. Drugs play the role of removing blood stasis, promoting blood circulation and evacuating internal heat. Modern pharmacology has proved that oral administration of Jinsang Sanjie pill has no obvious effect on liver and kidney and has high safety. On the basis of microwave physiotherapy combined with Jinsang Sanjie pill can better achieve the effect of detoxification, heat clearing, blood stasis, phlegm and dampness. According to the results of this study, the total effective rate of the observation group was higher than that of the control group, the whole blood high shear viscosity, whole blood low shear viscosity, plasma viscosity and ESR of the observation group were lower than those of the control group, the longest pronunciation time and dysphonia index of the observation group were higher than those of the control group, and the fundamental frequency perturbation, amplitude perturbation and noise harmonic ratio of the observation group were lower than those of the control group, with statistical significance ($P < 0.05$).

To sum up, Jinsang Sanjie pill combined with microwave physiotherapy has a significant effect in the treatment of chronic laryngitis, which has the value of use and promotion.

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