

Effects on clinical symptoms, cure rate, and recurrence rate of patients with bacterial pneumonia treated with Tanreqing injection combined with antibiotics.

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Abstract

Objective: To investigate the effects on the clinical symptoms, cure rate, and recurrence rate of patients with bacterial pneumonia treated with Tanreqing injection combined with antibiotics.

Methods: Sixty-eight cases of patients with bacterial pneumonia in our hospital were selected from October 2014 to November 2015. They were randomly divided into observation and control groups. The patients in the control group were treated with antibiotics and the patients in the observation group were given Tanreqing injection. Therapeutic effects, remission time, and relapse in the two groups were determined.

Results: The total effective rate of the patients with bacterial pneumonia in the observation group was 100%, which was significantly higher ($\chi^2=3.9813$, $P=0.0460$) than that of the patients in the control group (85%). The remission time of the patients also significantly differed between the two groups. In particular, the remission time of fever, cough, and expectoration in the observation group was significantly less than that of the control group ($P<0.05$). The recurrence rate of the patients in the observation group was significantly lower than that of the patients in the control group ($P<0.05$).

Conclusion: Tanreqing injection combined with antibiotics elicits good therapeutic effects on patients with bacterial pneumonia. This combination can reduce the recurrence rate and may be recommended for the treatment of this disease.

Keywords: Tanreqing injection, Antibiotics, Bacterial pneumonia.

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Introduction

Bacterial pneumonia is a common respiratory disease accounting for 80% of all kinds of pathogenic pneumonia in adults. Pathogen variation abuse and antibiotic abuse can result in severe drug resistance, which impedes clinical treatment [1]. As such, treatments other than antibiotics should be administered to treat this disease. For instance, Tanreqing injection is a Chinese herbal extract that alleviates fever, eliminates toxic effects, and reduces phlegm. This extract can be used to treat bronchitis and pneumonia. In this study, the effects of Tanreqing injection combined with antibiotics on the clinical symptoms, cure rate, and recurrence rate of patients with bacterial pneumonia were investigated, and good results were obtained.

Materials and Methods

General data

Sixty-eight cases of patients with bacterial pneumonia in our hospital were selected from October 2014 to November 2015. These patients were equally divided into observation and control groups according to the random numbering table method. The patients in the observation group (n=34) aged 22-64 years with an average of 42.32 ± 2.52 years, and their treatment duration was 1-4 d with an average of 2.8 ± 0.4 d. The patients in the control group (n=34) aged 20-67 years with an average of 41.38 ± 2.06 years, and their treatment duration was 1-5 d with an average of 3 ± 0.5 d. The duration and age of the two groups were comparable and were not significantly different ($P>0.05$).

Inclusion criteria

All of the patients volunteered to participate in the study and signed their written consent. Diagnostic criteria: (1) wheezing, cough, expectoration, and fever; (2) rough lung sounds or diminished breathing sounds with moist rales; and (3) X-ray suggesting pneumonia consolidation [2].

Methods

The patients in the control group were treated with an intravenous drip of 0.2 g of levofloxacin (2 ml: 0.1 g; Chinese medicine standard: H19990020; Zhejiang Pharmaceutical Ltd. by Share Ltd., Xinchang Pharmaceutical Factory) twice a day for a week. The effects of this treatment were then observed. Based on the patients in the control group, the patients in the observation group were treated with 20 mL/time Tanreqing injection (10 ml; Chinese medicine standard: Z20030054; Shanghai Kaibao Pharmaceutical Co., Ltd.), and 250 ml of 5% glucose was intravenously dripped once a day for a week. The effects of this treatment were also recorded.

Observation index

The overall therapeutic effects on the patients in the two groups were divided into four levels, namely, cured, excellent, effective, and ineffective, according to the following characteristics. Cured: cough, expectoration, fever, and other symptoms disappeared or were alleviated, lesion absorption was greater than 85%, and hemogram was normal. Excellent:

the main symptoms were significantly alleviated, lesion was obviously absorbed but was less than 85%, and hemogram was almost normal. Effective: the symptoms were improved, lesion was absorbed, and hemogram was decreased. Ineffective: the objective indexes and symptoms remained unchanged, the disease was changed, and the treatment method was changed [3].

The remission time of cough, expectoration, fever, and other clinical symptoms was observed in the two groups. The basic or complete disappearance of cough and expectoration was designated as the standard. An axillary temperature lower than 37.3°C was considered as the standard of no fever.

The recurrence of the disease 1 year after treatment was observed.

Statistical analysis

Data were analysed using SPSS18.0. Count data and two independent samples were compared with χ^2 test and t test, respectively. $P < 0.05$ indicated that significant differences.

Results

Analysis of the curative effect on the two groups

The total effective rate of the patients with bacterial pneumonia (Table 1) was 100%, which was significantly higher ($\chi^2=3.9813$, $P=0.0460$) than that of the control group (85%).

Table 1. Curative effect on the two groups (n (%)).

Group	Cases	Cured	Excellent	Effective	Ineffective	Total effective rate
Observation group	34	25 (73.53)	7 (20.59)	1 (2.94)	1 (2.94)	33 (97.06)
Control group	34	14 (41.18)	8 (23.54)	6 (17.64)	6 (17.64)	29 (82.36)
χ^2 value	-	7.2750	0.0855	3.9813	3.9813	3.9813
P value	-	0.0070	0.7699	0.0460	0.0460	0.0460

Analysis of the complications in the two groups

The symptom remission time significantly differed between the two groups. The remission time of fever, cough, and expectoration of patients in the observation group was significantly less than that of the control group ($P < 0.05$; Table 2).

Table 2. Comparison of symptom remission time between the two groups ($\bar{x} \pm S$).

Group	Cases	Fever/h	Cough/h	Expectoration/h
Observation group	34	24.18 \pm 0.83	46.55 \pm 1.06	50.23 \pm 1.74
Control group	34	26.20 \pm 2.97	49.01 \pm 3.11	52.17 \pm 2.98
t value	-	3.8195	3.6900	3.2781

P value	-	0.0005	0.0008	0.0010
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Serum PCT and CRP levels of patients in the two groups

Before the treatments were administered, the serum PCT and CRP levels of the patients in the treatment groups were higher than the normal level, but the difference was not significant. After the treatments were given, the serum PCT and CRP levels of the patients in the two groups were significantly decreased. These levels were improved more significantly in the observation group than in the control group ($P < 0.05$; Table 3 and Figure 1).

Table 3. Serum PCT and CRP levels of the patients in the two groups.

Group	Cases	Time	PCT ($\mu\text{g/L}$)	CRP (mg/L)
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Control group	34	Before treatment	11.78 ± 3.71	54.52 ± 9.21
		After treatment	3.90 ± 24.01*	10.26 ± 2.25*
Observation group	34	Before treatment	10.08 ± 30.55	53.71 ± 11.02
		After treatment	0.31 ± 23.12*	3.91 ± 2.53*
t*	-	-	12.81	10.66
P*	-	-	0.019	0.022

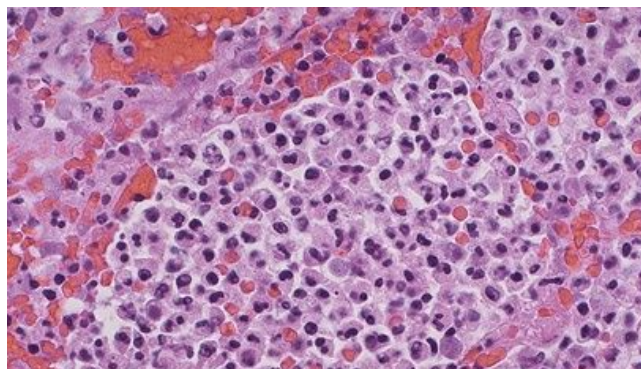


Figure 1. Pathological diagnosis of bacterial pneumonia.

Analysis of disease recurrence in in the two groups

Six patients in the control group relapsed eight times within 1 year after treatment. One patient in the observation group also relapsed once. The recurrence rate of the patients in the observation group was significantly lower than that of the patients in the control group (P<0.05).

Discussion

Various pathogens thrive in the respiratory tract. Patients with nosocomial infections, suffer from mixed infections. Their clinical severity differs, and clinical manifestations and chest X-ray often overlap among various infections and between infections and non-infections. Therefore, it is difficult to identify [3]. Bacterial pneumonia, as an infectious respiratory disease, exhibits diverse clinical manifestations and drug resistance degrees. Since the development of antibiotics, the prognosis of bacterial pneumonia has significantly improved. However, the mortality rate has remained high since the 1960s. New characteristics, including pathogen spectrum transition, appear in bacterial pneumonia, especially in nosocomial pneumonia whose G-bacillus ratio is increased significantly. Although *Streptococcus pneumoniae* predominantly causes community-acquired pneumonia, its clinical manifestations are atypical [4] and its resistance is increased. “Refractory” pneumonia commonly occurs and yields high mortality rates in children, the elderly and immunocompromised patients. Routine treatment includes antibiotics, but drug resistance is increased after patients receive antibiotic treatment. Thus, diseases recur and remain uncontrolled. Non-steroidal analgesic-antipyretic drugs elicit good therapeutic effects, but these drugs are associated with adverse gastrointestinal tract reactions and thus cause peptic ulcer, granulopenia, and thrombocytopenia [5].

Bacterial pneumonia belongs to the category of “wind-warm lung-heat syndrome” in Chinese medicine. The pathogenesis of this disease is mostly wind-warm, evil attacking the lung, obstructions of the lung-qi, phlegm-heat, and Qi activity is not smooth. The disease mainly affects the lung. The key treatment is to release lung from heat and purge the lung to reduce phlegm [6]. The main components of Tanreqing injection include bear gall powder, cornu gorais, Radix Scutellariae, honey suckle, and Forsythia. Radix Scutellariae can clear heat, purge fire, and detoxify. Bear gall powder and cornu gorais can enhance the heat-clearing and detoxifying effects. Honey suckle can dispel wind and relieve exterior syndrome, clear heat, and remove toxicity. Forsythia can penetrate the muscle and relieve exterior syndrome, clear heat, and dispel wind; it mainly treats wind heat [7,8]. Thus, Tanreqing injection targets bacterial pneumonia and elicits significant curative effects. This study showed that the total effective rate of patients with bacterial pneumonia in the observation group was 100%, which was significantly higher than that of the control group (85%; $\chi^2=3.9813$, P=0.0460). The remission time of patients significantly differed between the two groups. The fever, cough, and expectoration remission time of the patients in the observation group was significantly less than that of the control group (P<0.05). The recurrence rate of the patients in the observation group was significantly lower than that of the control group (P<0.05). The effect of Tanreqing injection combined with antibiotics on bacterial pneumonia was significantly higher than that of single antibiotics. Moreover, the remission time of fever, cough, expectoration, and other clinical symptoms was significantly shortened and the recurrence rate was decreased [9,10]. Six patients treated with single antibiotics relapsed eight times within 1 year after treatment and one patient treated with Tanreqing injection combined with antibiotics relapsed once.

Conclusion

Tanreqing injection combined with antibiotics elicits good therapeutic effects on bacterial pneumonia and thus should be recommended for the treatment of this disease.

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