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## Clinical Research

Clinical efficacy observation of comprehensive *ying* needling therapy for mumps<sup>☆</sup>Haiyan TIAN (田海燕)<sup>a,\*</sup>, Mengbo XU (徐梦博)<sup>b</sup><sup>a</sup>Acupuncture-Moxibustion Department, Third Affiliated Hospital of Nanchang University, Nanchang 330008, Jiangxi Province, China (南昌大学第三附属医院 针灸科, 江西南昌 330008, 中国)<sup>b</sup>Moxibustion School, Jiangxi University of Traditional Chinese Medicine, Nanchang 330004, Jiangxi Province, China (江西中医药大学灸学院, 江西南昌 330004, 中国)

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## ABSTRACT

**Objective:** To compare the clinical efficacy difference between comprehensive *ying* needling therapy and intramuscular injection with ribavirin for mumps.**Methods:** One hundred patients with mumps were randomly divided into comprehensive *ying* needling therapy group (group A, 52 cases) and western medicine group (group B, 48 cases), then 8 cases were eliminated and drop out from group A and 4 cases were eliminated and drop out from group B respectively, actual inclusion 44 cases in group A 44 cases in group B. Point bloodletting was performed at parotid gland (腮腺Sāixiàn) and Threesang acupoints of the patients in group A for once every other day, treatment for 7 days was considered as 1 course of treatment, and 2 courses were needed. Intramuscular injection with ribavirin was given to the patients in group B for twice a day, treatment for 7 days was considered as 1 course, and 2 courses were needed. The parotid gland swelling score, fever score, orifice parotid duct swelling score, score of difficulty in opening mouth and the clinical efficacy of the patients in the two groups were compared before and after treatment.**Results:** The cured and markedly effective rate in group A was 90.9% (40/44), which was superior to 68.2% in group B (30/44) ( $P < 0.05$ ). The symptom scores were all improved significantly in the two groups after treatment (all  $P < 0.05$ ), and the improvement in group A was superior to that in group B (all  $P < 0.05$ ).**Conclusion:** The curative effect of comprehensive *ying* needling therapy for treatment of mumps was superior to that of conventional western medicine therapy.

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Mumps is a kind of acute and systemic infection caused by mumps virus, and it is a kind of respiratory infectious disease commonly seen in children and teenagers. Its common complications include meningitis and orchitis [1]. The latent period of mumps is 8–30 days with an average of 18 days. Its initial sign includes enlargement of parotid gland, without premonitory symptoms. In western medicine, mumps is often treated by using antiviral and symptomatic treatment which are difficult to adapt to the rapid changes of the disease in children. The authors adopted comprehensive *ying* needling therapy for mumps, and compared with the curative effect of intramuscular injection with ribavirin. The details are reported as follows.

## Clinical data

## General information

The total 88 patients with mumps were selected from the outpatients of pediatric department and internal medicine department of the Third Affiliated Hospital of Nanchang University from September 2014 to September 2016. One hundred patients who conformed to the inclusion criteria were selected and then randomly divided into comprehensive *ying* needling therapy group (group A, 52 cases) and western medicine group (group B, 48cases) according to the random number table [2]. Then 8 cases were eliminated and drop out from group A and 4 cases were eliminated and drop out from group B respectively. The actual number of included cases was 88, with 44 cases in each group. Per-protocol analysis was adopted in this study. In group A, there were 28 males and 16 females; the youngest was 4 years old, the oldest was 17 years old, and the average was  $(9.59 \pm 4.03)$  years old; the shortest course of disease was 2 days, the longest was 6 days, and the aver-

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age was  $(4.09 \pm 1.38)$  days. In group B, there were 19 males and 25 females; the youngest was 4 years old, the oldest was 15 years old, and the average was  $(8.95 \pm 3.37)$  years old; the shortest course of disease was 3 days, the longest was 7 days, and the average was  $(5.07 \pm 1.47)$  days. According to the statistical analysis of gender, age and course of disease in the two groups, the differences were not statistically significant (all  $P > 0.05$ ), and the results were comparable. This study was approved by the Ethics Committee of the Third Affiliated Hospital of Nanchang University.

#### Diagnostic criteria

By reference to the diagnostic criteria of mumps in the *Guidelines of Clinical Research on Chinese New Herbal Medicine* [3] in 2002: ① Fever, diffuse swelling centering the ear lobe, undefined margin, without change in the skin color, with resilience and tenderness. The symptom appears from one side generally, and is seen on the other side successively, possibly associated with headache and body pain, red and swollen parotid duct was seen in the mouth. ② The disease often attacks people in winter and spring. The patient has contact with other people who are suffering from mumps. ③ Normal or slightly reduced WBC level, relatively increased classified counted lymphocyte, and increased amylase level in blood and urine [4].

#### Inclusion criteria

① The patients who conformed to the above-mentioned diagnostic criteria of mumps; ② with the age of 4–18 years old; ③ with pain in the 1 day to 7 days; ④ the patients who signed the informed consent form by themselves or their family members.

#### Exclusion criteria

① The patients with complications of meningitis or orchitis; ② the patients who accepted other treatment during the study; ③ the patients who were afraid of needles or rejected acupuncture-moxibustion.

#### Elimination criteria

① The patients who conformed to the inclusion criteria but did not accept treatment, or who accepted treatment but did not complete the whole course; ② the patients who took medicine independently after inclusion.

#### Drop-out criteria

① The patients who suffered from adverse events or complications, and were not suitable for further treatment; ② the patients who dropped out from the study by themselves; ③ the patients who quit from the study due to other reasons; ④ the patients with incomplete data records which may affect the efficacy evaluation.

### Treatment methods

#### Comprehensive ying needling therapy group (group A)

- Acupoint selection: Parotid gland (腮腺 Sāixiàn) is located at the induration of the highest point of the enlargement of parotid gland under the ear lobe. Shàoshāng (少商 LU 11), Lǎoshāng (老商) and Zhōngshāng (中商), these three points are located in the root of the nail of thumb, LU 11 is located at the radial margin, Lǎoshāng is located at the ulnar margin, and Zhōngshāng is located at midpoint of LU 11 and Lǎoshāng. The three points are called Three-shangacupoints.

- Manipulations: the patient was asked in sitting position, and the hands of doctor were disinfected conventionally. The enlargement of parotid gland under the ear lobe was also disinfected conventionally, then fixed by the doctor's left hand. *Hwato* 0.35 mm × 40 mm disposable filiform needle was held by the doctor's right hand, and perpendicular insertion was performed at Parotid gland with a depth of 8–10 mm. Then lifting and thrusting and twirling needle was manipulated for 2–3 times, which was followed by rapid withdrawal. About 0.1 mL of blood flowed from Parotid gland and iodophor disinfection was conducted after wiping the blood with sterilized dry cotton ball. The patient's arm in the affected side was stroked from the upper arm to the forearm until the distal end of thumb for 2–3 times, making the thumb congestion. After routine disinfection of the thumb, the root of thumb was held by the left hand of the doctor, and a 0.30 mm × 25 mm disposable filiform needle was held by the right hand of the doctor to conduct rapid point bloodletting at the Three-shang acupoints with a depth of 1–2 mm. With rapid insertion and withdrawal, the manipulation should be light, shallow and fast with uniform force. Then the acupoints were squeezed for bloodletting, 1–2 drops per acupoint. Iodophor disinfection was conducted after wiping the blood with sterilized dry cotton ball.
- Acupuncture time point: the patient should be treated after three days since the disease onset, and symptomatic treatment should be performed in the first three days since the disease onset by adopting physical cooling. The first three days since the disease onset was the swelling period, that is the peak period for heat toxin formation, with local swelling and heat pain. After acupuncture bloodletting, the fever was brought down because the pathogenic heat reached to the exterior along with the needles. The local swelling would be more severe after acupuncture if the pathogenic heat did not form to the peak with the first three days.

The treatment was carried out for once every other day, treatment for 7 days was considered as 1 course of treatment, and 2 courses were needed.

#### Western medicine group (group B)

Intramuscular injection with ribavirin (Hubei Tianyao Pharmaceutical Co., Ltd., SFDA approval number H19993162) was applied. Usage and dosage: ribavirin was diluted to one milligram per milliliter with 0.9% sodium chloride injection, then the diluent was injected intramuscularly and slowly. For children, the dosage of 10 mg/kg/d was followed, and the injection was given in 2 times a day. Injection for 7 days was considered as 1 course of treatment, and 2 courses were needed.

### Efficacy observation

#### Outcomes

- Parotid gland swelling score: without swelling, scoring 0 point; parotid gland swelling in one side without submandibular gland enlargement, scoring 3 points; parotid gland swelling in one side associated with submandibular gland enlargement, scoring 6 points; parotid gland swelling in the both sides with hard and hot texture, scoring 9 points.
- Fever score: without fever, scoring 0 point; with a temperature between 37.3 °C and 38.5 °C, scoring 1 point; with a temperature between 38.6 °C and 39.5 °C, scoring 2 points; with a temperature not lower than 39.6 °C, scoring 3 points.
- Orifice parotid duct swelling score: not red, scoring 0 point; slightly red without swelling, scoring 1 point; light red and

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