Clinical Study on Treatment of Shoulder Periarthritis with Electro-acupuncture on Point Jianyu (LI 15)

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Abstract: Objective: To compare the curative efficacy and safety of electro-acupuncture on Jianyu (LI 15) with oral administration of Diclofenac Sodium Sustained-release Capsules in treating shoulder periarthritis. Method: Randomized controlled trials (RCT) were adopted in the study. The patients were randomized into two groups, 30 cases in one group. Electroacupuncture was done on Jianyu (LI 15) 20 min every time in the treatment group, while 75 mg Diclofenac Sodium Sustained-release Capsules were orally administered in the control group. For all the patients in two groups, one treatment course contains 7 days. Then the curative efficacy was evaluated by the efficacy evaluation criteria after two consecutive courses. Result: The total effective rate of treatment group and control group were 93.3% and 56.7% respectively. Conclusion: Electroacupuncture on Jianyu (LI 15) is an effective therapy for shoulder periarthritis and has more significant effect than oral Diclofenac Sodium Sustained-release Capsules.

Key Words: Electroacupuncture; CLC number: R246.9

Shoulder periarthritis, also named frozen shoulder, is commonly and frequently encountered disease characterized by shoulder arthralgia and dysfunction due to trauma, cold invasion, strain, and degeneration of soft tissues around the shoulder joints. It often attacks people around fifties, especially women. According to TCM theory, shoulder periarthritis belongs to the scope of "Bi-syndrome", which results from malnutrition and contracture of muscles and tendons due to cold retention and stagnation of qi and blood. Jianyu (LI 15) has exact clinical efficacy, which has been confirmed through the comparison between pre-and post-treatment effect.

Clinical Data

1. Diagnostic criteria[1]
   a. Either history of chronic strain or trauma or deficiency of qi and blood plus being attacked by pathogenic wind, cold or dampness;
   b. Around fifties, more female than male, mostly physical laborers, and chronic onset;
   c. Pain around shoulder, especially at night, always induced by weather changes and fatigue, motor dysfunction of shoulder joints;
   d. Atrophy of the shoulder muscle, tenderness in anterior, posterior and lateral aspects of the shoulder, marked limitation of shoulder abduction with typical shoulder carrying;
   e. X-ray examination usually shows negative, and osteoporosis occurs with chronic duration.

2. Exclusive criteria
   a. Complication of life-endangered primary diseases such as cardio-cerebral vascular, liver, kidney, and hematopoietic system problems as well as mental diseases;
   b. Simultaneous administration of glucocorticosteroid drugs which may affect the curative efficacy;
   c. Unwilling to participate in the study, drop out or loss of contact;
   d. Pregnant women;
Concurrence of bone tuberculosis or tumor, acute shoulder trauma occurs during treatment.

3. General material

The patients were divided into two groups by random number table. Among 30 cases in the treatment group, male: 12 cases; female: 18 cases; mean age: 50.2 years old; disease duration: from 1 week to 6 months. Among 30 cases in the control group, male: 13 cases; female: 17 cases; mean age: 49.1 years old; disease duration: from 2 weeks to 7 months. The two groups are comparable without significant differences in sex, age, and disease duration.

Therapeutic Approach

Owing to the remarkable difference of the two therapeutic approaches, double-blind method is impossible, and therefore single-blind method was adopted.

1. Electroacupuncture group
   Point: Jianyu (LI 15)
   Operation: After locating the point by WHO standard: the anterior-inferior depression of acromion with arm abducted or flatly extended.
   a. Routine disinfection with 75% alcohol.
   b. Aseptic stainless steel of 0.38 mm in diameter and 40 mm in length (Type No: NA3015; Batch No: 3-30705-3) were inserted about 1 cun to the healthy-side point Jianyu (LI 15), followed by even reinforcing-reducing manipulation.
   c. Upon arrival of qi, the needle was connected with one electrode (Han's Point-Nerve Stimulator, Type No: LH202H, manufactured by Beijing Huawei Company), while the other electrode was plastered to the distal non-point area of the same side. The stimulator was given intermittent wave, frequency of 40 Hz and current intensity of 2 mA. Each treatment lasted 20 min, once a day and 7 days in a course.

2. Control group
   Oral administration of 75 mg Diclofenac Sodium Sustained-release Capsules (Kaflan sustained-release capsules manufactured by Beijing Novartis Pharmaceutical Ltd, batch No: 03008, 75 mg/capsule), once a day, and 7 days in a course.

The patients of both the electroacupuncture group and control group were treated for 2 courses, and the follow-up was done 15 days after the treatment.

Therapeutic Result

1. Therapeutic efficacy evaluation criteria
   Recovery: Shoulder pain disappeared, basic or complete functional restoration of the shoulder joint;
   Better: Shoulder pain alleviated, motor function of the shoulder joint improved;
   Failure: Symptoms remained no change.

2. Therapeutic result

<table>
<thead>
<tr>
<th>Group</th>
<th>Recovery</th>
<th>Better</th>
<th>Failure</th>
<th>Recovery rate (%)</th>
<th>Effective rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment</td>
<td>17</td>
<td>11</td>
<td>2</td>
<td>56.7</td>
<td>93.3</td>
</tr>
<tr>
<td>Control</td>
<td>6</td>
<td>11</td>
<td>13</td>
<td>20.0</td>
<td>56.7</td>
</tr>
</tbody>
</table>

Ridit analysis suggested that the average R values of the treatment group and control group were 0.6253 and 0.3747 respectively, $u = 3.36 > 2.58$, $P < 0.01$, and that indicated the efficacy difference has highly statistical significance. The average R value of the two groups showed that electroacupuncture group had better efficacy than the control group.

Discussion

In 1872, Duplay firstly put forward the diagnosis of shoulder periarthritis and considered that subacromial bursitis, degeneration and adhesion are the causes of shoulder pain and limitation of shoulder joints. Currently there are more extensive research and understanding on shoulder periarthritis. It's generally thought that this disease is a chronic aseptic inflammatory reaction of the soft tissues around shoulder joints, which results in extensive adhesion of soft tissues and then restricts the motion of shoulder joints. The conservative therapy of Western medicine mainly contains NSAIDs and local blocking, which may cause inexact therapeutic effect and side effects. And the shoulder surgery may cause new adhesion of joints.

TCM holds that shoulder periarthritis is caused by essence deficiency of liver and kidney, insufficiency of qi and blood, and malnutrition of muscles and tendons due to aging or fatigue, plus strain and long-term residence in damp and cold area. Consequently the pathogenic wind-cold-dampness accumulates in blood vessels, muscles and tendons, leading to blood stagnation, contracture...