Clinical Observation on Therapeutic Effect of Yin-meridian Electroacupuncture in Reducing Muscular Tension of Limbs in Apoplectic Hemiplegia

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Abstract
Objective: In order to observe the therapeutic effect of acupuncture in reducing muscular tension of the limb in apoplectic hemiplegia. Methods: Yin-meridian electroacupuncture was used to treat 37 cases of high muscular tension of limbs in apoplectic hemiplegia. Results: The total effective rate was 83.3% in reducing muscular tension and was 86.5% in increasing the index in the activity of daily life (ADL). Conclusion: The findings show that yin-meridian electroacupuncture has a good effect in reducing muscular tension and improving the activity of daily living and is beneficial to rehabilitation of paralyzed limb.

Key Words Stroke; Hemiplegia; Spasm; Acupuncture Therapy

Abnormal enhancement of muscular tension in apoplectic hemiplegia is one of the most principal functional disturbances in apoplectic disease and the enhanced muscular tension would limit the activities and directly influence the motor functions, motion ability and life quality. How to inhibit the enhancement of muscular tension effectively in rehabilitation of hemiplegia remains a main content and issue in rehabilitation medicine. By clinical observation for two years, the authors have found that to puncture the acupoints of yin meridians in the upper and lower limbs, plus electric stimulation, is effective for reducing the muscular tension of the limbs in apoplectic hemiplegia.

Clinical Materials

1. Criteria of recruitment
   Stable condition, in rehabilitation of stroke, below 75 years old, without deformity in the sick limbs, without severe diseases in the heart, lung, kidney and blood.

2. General materials
   Thirty-seven cases of the patients were all from the acupuncture ward and the selected subjects were the patients in the rehabilitation of stroke, with stable condition and enhanced muscular tension in different degrees, including 25 males and 12 females, with the average age of 65 years old, and with the duration ranging from 15-134 days, at the average duration of 27.3 days, and also including 27 cases of cerebral infarction, 10 cases of cerebral hemorrhage (conformed by CT or MRI), 21 cases of hemiplegia in the right limbs, 13 cases of hemiplegia in the left limbs, and 3 cases of paralysis in the bilateral limbs.

3. Observation indexes
   (1) Evaluation of Muscular Tension (Based upon international Ashworth scale)
   Grade 0: No enhancement of muscular tension.
   Grade 1: Slight enhancement of muscular tension, presenting pause in flexion and extension of the limbs.
   Grade 2: Obvious enhancement of muscular tension, but easy flexion and extension of the limbs.
   Grade 3: Obvious enhancement of muscular tension, with difficulty in passive movements.
   Grade 4: Limited flexion and extension of the limbs.
   (2) Evaluation of Activity of Daily Life (Based upon BarthelSHI's ADL index)
   Score 0-34: Basically by complete assistance.

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Therapeutic Methods

1. Acupoints

Motor zone in the head (opposite side of the sick limb), Jiquan (HT 1), Shaohai (HT 3) and Lingdao (HT 4) in the sick upper limb, Jiremen (SP 11), Ouquan (LR 8), Xiguan (LR 7) and Zhongfeng (LR 4) in the sick lower limb.

2. Operation

After arrival of the needling sensation, G6805 Electric Acupuncture Apparatus was used with dense wave and frequency of 60-80 Hz and the needles were retained for 30 min. The treatments were given six times a week, with rest on Sunday. After five weeks of treatments, the therapeutic effects were observed.

Therapeutic Effects

1. Criteria of therapeutic effects

   (1) Judgment of Therapeutic Effects in Muscular Tension.

   Cure: Muscular tension was restored to normal level in comparison with before treatments.
   Remarkable effect: Muscular tension was reduced by 2 grades or over 2 grades in comparison with before treatments.
   Effect: Muscular tension was reduced by 1 grade in comparison with before treatments.
   Failure: No change or increase in muscular tension.

   (2) Judgment of Therapeutic Effects in Activity of Daily Life

   Remarkable effect: ADL indexes were increased by over 20 points as compared with before the treatment, with total score > 60 points.
   Effect: ADL indexes were increased by 10-19 points as compared with before the treatment, with total score in 60-41 points.
   Failure: ADL indexes were increased by less than 10 points as compared with before the treatment, with total score < 40 points.

2. Therapeutic results (Table 1 and 2)

   After the treatments in 37 cases, the results showed cure in 1 case, decrease of muscular tension by 2 grades or above in 14 cases, with the remarkable effective rate in 40.5%, and decrease of muscular tension by 1 grade in 16 cases, with the effective rate in 43.2%, and failure in 6 cases, and the total effective rate in 83.8%.

   In comparison with ADL indexes before the treatments, there were 14 cases in increase of over 20 point, with the total score > 60 points, and the remarkable effective rate in 37.8%, and 18 cases in increase of 10-19 points, with the total score in 60-41 points, and the effective rate in 48.6%, and the total effective rate was 86.5%.

Discussion

After apoplectic hemiplegia, the muscular tension in the paralyzed limbs increases and the tendon reflex becomes active. In modern medicine, the commonly used medications are Diazepam Tablets, Dantrolene Sodium Capsules, Tizanidine Hydrochloride Tablets, Baclofen Tablets, Myonal and Botulinum toxin, but therapeutic effects are not sure to different extents and cost is expensive and side effects are numerous. In surgical methods, there are amputation of anterior root of the spinal nerve and incision of spinal cord, but surgery is certainly risky and high in cost, moreover spasm will be present again.

It is believed in Chinese medicine that "all spasms and stiff neck are related to wind," and the symptoms of contraction and spasm belong to manifestation of "wind". In this moment, "wind" refers to internal wind, a hidden stirring up of internal wind. It is recorded in Zhengzi Yaojue: "In those with diseases not cured for the whole life, with ability to flex the hand and foot but difficulty to extend, and vice versa, the liver is damaged by wind, for the liver dominates the tendons and they are related to tendons." ZHANG

Table 1. Comparison of grades in muscular tension of upper and lower limbs before and after treatments (Cases)

<table>
<thead>
<tr>
<th>Time</th>
<th>Grades of Muscular Tension in Upper Limbs</th>
<th>Grades of Muscular Tension in Lower Limbs</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>0  1  2  3  4</td>
<td>0  1  2  3  4</td>
</tr>
<tr>
<td>Before treatment</td>
<td>0  2  21 9 5</td>
<td>0  5  18 10 4</td>
</tr>
<tr>
<td>After treatment</td>
<td>0  6  18 10 3</td>
<td>1  13 12 8 3</td>
</tr>
</tbody>
</table>

Table 2. Comparison of ADL indexes before and after treatments

<table>
<thead>
<tr>
<th>Time</th>
<th>0-34 points</th>
<th>35 points</th>
<th>36-79 points</th>
<th>80 points</th>
<th>81-99 points</th>
<th>100 points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before treatment</td>
<td>16</td>
<td>6</td>
<td>5</td>
<td>5</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>After treatment</td>
<td>7</td>
<td>5</td>
<td>3</td>
<td>6</td>
<td>9</td>
<td>7</td>
</tr>
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