Stage-oriented Comprehensive Acupuncture Treatment plus Rehabilitation Training for Apoplectic Hemiplegia

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Objective: To study the effect of stage-oriented comprehensive acupuncture treatment plus rehabilitation training for the recovery of apoplectic hemiplegia. Methods: The 60 cases of acute apoplectic hemiplegia were divided randomly into the treatment and control groups with 30 in each. Based on the routine medication, acupuncture combined with modern rehabilitation techniques was applied for the treatment group, while only rehabilitation treatment for the control group. Before and three months after treatment, the evaluation was done on the motor function and daily life ability for both groups respectively with simplified Fugl-Meyer Evaluation and modified Barthel index. Results: The therapeutic effect of treatment group was significantly superior to that of the control group (P<0.05). Conclusions: Based on Brunnstrom’s theory of six-stage in the recovery of hemiplegia, the effect of stage-oriented comprehensive acupuncture therapy combined with rehabilitation training is very good, helpful in raising the daily life ability of patients.

Along with the improvement in the levels of diagnosis and emergency treatment for wind-stroke, the death rate of such patients has been greatly lowered down. However, the rate of disableness of the survivals still covers over 80%, and hemiplegia proved to be the most commonly encountered dyskinesia in cases of cerebral apoplexy. For this reason, the authors have conducted the study on the stage-oriented comprehensive acupuncture treatment plus modern rehabilitation training for apoplectic hemiplegia patients. The report follows.

CLINICAL DATA
Criteria for case selection: Based on The Diagnostic Criteria for Various Cerebrovascular Diseases passed at the 4th National Academic Conference on Cerebrovascular Diseases, the incipient patients with acute cerebral infarction or hemorrhage having been confirmed by CT or MRI examination were enrolled if they were also up to 1) The selection criteria: having stable vital signs, 48 hours after the stop of development of neurographic symptoms, within 10 days of disease duration, the score of Glasgow Coma Scale (GCS) ≥ 9, and having extremal dysfunction; and 2) The exclusion criteria: having active hepatic diseases, hepatorenal insufficiency, congestive heart failure, malignant tumor, anamnesis of dementia or psychoses, deaf-mute, and extremal dysfunction but the score of simplified Fugl-Meyer Assessment (FMA) of motor function ≥ 90.

The 60 cases selected were inpatients of the Neurology Department of Chengdu Municipal Hospital of Integrated Traditional Chinese and Western Medicine from January 2004 to January 2005, who were diagnosed as having early-stage hemorrhagic and ischemic apoplectic hemiplegia. They were divided randomly into the treatment and control groups. Table 1 shows the general data of the two groups, enumeration data were expressed as frequency, and processed by $\chi^2$ test; and the measurement data was expressed as mean ± Standard Deviation (SD) and processed by student $t$ test. The two groups were comparable since there was no significant statistical difference between the two groups (P>0.05).
Table 1. General Data

<table>
<thead>
<tr>
<th>Group</th>
<th>n</th>
<th>Sex (n)</th>
<th>Disease (n)</th>
<th>Anamnesis Complication</th>
<th>Duration (day, X ± s)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>m. f.</td>
<td>hemo Infar.</td>
<td>(scores) (points)</td>
<td>hemo. Infar.</td>
</tr>
<tr>
<td>Treatment</td>
<td>30</td>
<td>17 13</td>
<td>10 20</td>
<td>6 12</td>
<td>7.8±1.5 4.5±1.2</td>
</tr>
<tr>
<td>Control</td>
<td>30</td>
<td>15 15</td>
<td>11 19</td>
<td>5 11</td>
<td>8.4±1.6 3.7±1.3</td>
</tr>
</tbody>
</table>

METHODS

For two groups, the routine and relatively unified Chinese and Western medication were given. Bed good-posture was applied in the early-stage nursing, with one turn over every 2 hours. And transfusion of the affected side was avoided.

The treatment group: Acupuncture was given 5 times a week. 1) At the early stage of flaccid paralysis (corresponding to Brunnstrom stage I), the needling principle of arousing the brain was used. Main points: Guanyuan (CV 4), Neiguan (PC 6), Renzhong (GV 26), and Sanyinjiao (SP 6) on two sides. Assistant points: Jiquan (HT 1), Weizhong (BL 40), Chize (LU 5), Hegu (LI 4), and Qixu (GB 40) of the affected side. For those who were capable of enduring sharp pain, Yongquan (KI 1) of the affected side could be added. Referring to the third article listed in references for the manipulation. Yongquan (KI 1) was needled perpendicularly with slow insertion to 0.5–1.0 cun in depth, and there might appear obvious response of flexion in the lower limb. The lifting-thrusting and twirling was conducted once every 0.5–1 min. and repeated for 3 times. 2) At the late stage of flaccid paralysis (corresponding to Brunnstrom stage II), Jianyu (LI 15), Quchi (LI 11), Hegu (LI 4), Yuji (LU 10), Futu (ST 32), Yanglingquan (GB 34), Zusanli (ST 36), Jiexi (ST 41) and Taichong (LR 3) of the affected side and Quchi (LI 11), Hegu (LI 4) and Zusanli (ST 36) of the unaffected side were selected. And Fengchi (GB 20), Dazhui (GV 14), Shenshu (BL 23), Dachangshu (BL 25) and Yaoyangguan (GV 3) were selected. In the scalp needling, anterior oblique line of vertex-temporal (MS6), posterior oblique line of vertex-temporal (MS7) and Baihui (GV 20) were selected. Manipulation: for body points, the uniform reinforcing-reducing method was applied on the unaffected side, while the reducing method applied on the affected side with strong stimulation; the reinforcing method was applied for the Back-Shu points; and in the scalp needling, three needles were inserted with even distribution of them in the line, that is, with the first needle inserted from the upper point of the line and the third needle inserted with the tip to the lower point of the line. The needles were retained for 30 minutes, and manipulated once every 15 minutes. The treatment was once every day. 3) At the spastic stage (corresponding to Brunnstrom stage III – IV), points on the affected side were selected, such as Daling (PC 7), Hegu (LI 4), Bizhong (Extra), Chize (LU 5), Tianquan (PC 2), Jianqian (Extra), Futu (ST 32), Liangqiu (ST 34), Xuehai (SP 10), Yinlingquanshui (SP 9), Sanyinjiao (SP 6), Chengshan (BL 57) and Yinbai (SP 1). Deep needling with filiform needles was adopted so as to make the deep tissues obtain strong needling sensation to relieve the spasm. The needles were not retained. Each treatment lasted about half an hour, once daily. 4) At the remission stage (corresponding to Brunnstrom stage V), scalp needling was adopted on the affected side, with selection of the anterior oblique line of vertex-temporal (MS6), lateral line 1 of vertex, lateral line 2 of vertex (MS9), and lower lateral Line of occiput (MS14). The manipulation was the same as that mentioned above. With the needles retained in scalp, the patient was asked to do automatic functional exercise for half an hour to one hour, in the duration the needles were manipulated once every 15 minutes. In addition, the patients in the treatment group also received standardized modern rehabilitation treatment. Referring to the fourth book listed in references for the manipulation. In short, ‘one to one’ systemic functional exercise was
carried out in the order of lying, sitting, standing, balanced standing, gait, and fine movements of upper limb. The rehabilitation exercise was done once daily, each time lasting 1 hour, five times a week.

The control group: Only the modern rehabilitation treatment was given, done in the same way as the treatment group.

The observed items: The simplified FMA was applied to indicate the motor function of limbs, upper limb (66 points) and lower limb (34 points), 100 points in total. The modified Barthel index was applied to evaluate the daily life ability (MBI). The SPSS 10.0 statistical software was applied for processing all the data in research.

RESULTS

For the changes in motor function of limbs before and after treatment, see Table 2. The data were expressed as mean±SD. Single factor analysis of variance was applied for the between-group comparison.

For the changes in daily life ability before and after treatment, see Table 3. The data were expressed as mean±SD. Single factor analysis of variance was applied for the between-group comparison.

From the above, it can be seen that 1) Before treatment, the FMA and MBI of two groups had no significant differences (P>0.05), being comparable; 2) In-group comparison before and after treatment showed that after treatment, the FMA and MBI were significantly raised in the two groups (P<0.05); and 3) After treatment, the FMA and MBI of the treatment group were significantly higher than those of the control group (P<0.05). After treatment, the two groups all obtained quite good therapeutic effect, however, the group treated by the combination of acupuncture with rehabilitation treatment was superior to the group treated by only rehabilitation.

DISCUSSION

Along with the introduction of modern rehabilitation techniques in 1980s and its later development, the intervention of rehabilitation treatment in the early stage of apoplectic hemiplegia lowered the rate of disablement of such patients and raised their survival quality. Yet up till present, there exists not a fixed mode of rehabilitation. In the course of comprehensive rehabilitation, there remain many clinical problems needing quick resolve. The stage-oriented acupuncture treatment plus rehabilitation exercises for apoplectic hemiplegia described in this essay apply the medical theory of modern rehabilitation to guide the practice of acupuncture treatment for wind-stroke.
Taking the characteristics of individual patient, the different stages of apoplectic hemiplegia, and the different motor modes at different stages into consideration, the stage-oriented comprehensive acupuncture treatment plus rehabilitation gets the motor function and daily life ability of patients improved, suggesting that the combination of the two can enhance the therapeutic effect.

At the early stage of flaccid paralysis (Brunnstrom stage I), the main problem is the decrease or loss of muscle tension and sensation, which, according to TCM, is due to loss of genuine qi and stay of pathogenic factors. Needling simply at the paralytic side is difficult to activate qi in the channels and collaterals, since the tendon reflex has already disappeared; it is impossible to have arrival of qi. At this time, in addition to rehabilitation exercises, acupuncture for resuscitating the brain should be combined. The strong needling sensation produced by big amplitude lifting-thrusting and twirling of the needles and the technique of needling the healthy side can induce and improve the muscle tension and sensation.

At the late stage of flaccid paralysis (Brunnstrom stage II), there appears integrated reaction, and the muscle tension is a bit higher than before. The comprehensive acupuncture, including scalp needling, bilateral-point needling and heavy use of Back-Shu points, is aimed at continuously importing motor and sense information to the brain, inducing movement of limbs by making use of the integrated reaction and coordinated movement, and promoting ‘functional reorganization’ of the brain cells, so as to obtain the adjust and control on the low central nerve. By means of passive movement of the affected limb and active movement of the unaffected limb, combined with tapping and scraping manipulations, the rehabilitation training can further improve the muscle tension and sensation.

At the spastic stage (Brunnstrom stage III – IV), the tension of dominant muscle group (active muscle group) has already appeared and is getting greater, even hyperactive, resulting in spasm. The tension of non-dominating muscle group (antagonistic muscle group) may be very weak, even lost, and the extension and flexion muscles may become uncoordinated. Therefore, deep needling can give strong stimulation to the deep tissues to relieve spasm. This method of point selection was recorded in ancient literature. It was said that ‘deep needling at Chize (LU 5) could relieve spasm and numbness of arm’. The rehabilitation treatment adopted at this stage mainly uses the inhibiting method, such as good body posture, joint-loosening technique and continuous traction for relieving spasm.

At the relative remission stage (Brunnstrom stage V), the normal motor mode begins to set up. Scalp needling is used mainly at this stage, aimed at helping the patient in concentrating the mind in cooperating with rehabilitation training for further coordination of upper and lower limbs in movement so as to promote the establishment of normal motor mode.

To sum up, the combination of acupuncture with modern rehabilitation training accords not only with the TCM principle of ‘diagnosis and treatment based on overall analysis of symptoms and signs’, but also with the Brunnstrom theory of six-stage rehabilitation, raising the therapeutic effect for apoplectic hemiplegia.

REFERENCES

(Translated by Wang Xinzhong 王新中)