Clinical Observations

Clinical Research on Comprehensive Treatment of Senile Vascular Dementia

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Objective: To observe the curative effect of combined Chinese medicine, acupuncture and rehabilitation therapy on vascular dementia (VD), and to compare the Western medicine piracetam.

Methods: Total 134 VD patients screened in reference to the standard for VD diagnosis in DSM-IV were randomly divided into a Chinese medicine plus rehabilitation group (32 cases), a Chinese medicine plus acupuncture group (33 cases), a Chinese medicine and acupuncture plus rehabilitation group (37 cases) and a Western medicine piracetam group (32 cases). Mini Mental State Examination (MMSE) and Bless Behavior Scale (BBS) were used to assess changes in intelligence disorder before treatment and after 12-week treatment.

Results: BBS score, living ability and daily habit were enhanced after treatment in all groups. Cognitive function and behavioral ability were improved with similar total curative effects in all the 4 groups. Directional ability and short-term memory ability were significantly enhanced after treatment \((P<0.05)\) in both the Chinese medicine plus rehabilitation group and the Chinese medicine plus acupuncture group groups. Living ability was significantly improved after treatment in the Chinese medicine and acupuncture plus rehabilitation group \((P<0.01)\). However, no obvious difference was shown before and after treatment in the piracetam group.

Conclusion: The improvement of living ability in the comprehensive treatment group is better than that in the other groups. Chinese medicine and acupuncture plus rehabilitation treatment can improve intelligence and living ability of senile VD patients.

Keywords: Shenlong Jiannao Decoction; vascular dementia; memory function; comprehensive treatment

With the development of society, enhancement of medical level and increase of old population in China, the incidence of cerebral vascular disease has been rising year by year, and vascular dementia (VD) has been increasingly studied. The incidence of VD, a commonly and frequently encountered disease among old people, is about 1.1%–3.0% in China, similar to 1.3%–4.2% reported in European literature. At present, VD is treated from etiology or by improving symptoms. The medical cycle at home and abroad has attached importance to reports on Chinese medicine and acupuncture for treatment of VD. In this research, 168 VD patients were treated from January 2006 to March 2010 with combined Chinese medicine and rehabilitation, combined Chinese medicine and acupuncture, combined Chinese medicine, rehabilitation and acupuncture, and the Western medicine piracetam. The result is reported as follows.

METHODS

General Data

Among 168 VD patients in the authors’ hospital from January 2006 to December 2009, 147 were males and 21 females aged 60–87 years, 68.2±6.4 years on average; in cultural level, 74 university graduates, 76 middle school graduates and 18 primary school graduates, with their illness course ranging from 1 to 7 years, 2.2±1.3 years on average. There was no significant difference in HDS score, MMSE score and the other general data before treatment among the 4 groups, hence comparability.

Inclusive Standards

Patients with cerebrovascular disease and cerebral infarction confirmed by skull CT and MRI conformed to the following VD-diagnosing standards in Western medicine and in Traditional Chinese Medicine (TCM). According to the 4th edition of Handbook on Diagnosis and Statistics of Neuropathy (DSM-IV) revised by US Neuropathy Association (APA), and in reference to Hasegawa dementia scale (HDS), Mini Mental State Examination (MMSE) and Bless Behavior Schedule (BBS), cognitive function and behavioral ability were assessed. Two senior professionals systematically collected medical records of all the cases, conducted general check-up and carried out dementia scale tests, MMSE \(\leq 23\) and HDS \(>7\). TCM diagnosis was carried out according to the guidance Principles of Clinical Research on New Chinese Medicines for Treatment of Dementia in The guidance Principles of Clinical Research on New Chinese Medicines. Informed consent was obtained from all the study subjects.

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Exclusive Standards
1) Mixed dementia and Alzheimer’s dementia, 2) severe dysfunction of the heart, lung and kidney, 3) epilepsy and mental disease, 4) severe nervous defect, 5) allergy to the medicine, 6) VD patients at late stage, and 7) patients who did not conform to the inclusive standards or who did not take drug according to regulation.

Methods of Treatment
Total 134 VD patients were randomly divided into a Chinese medicine plus rehabilitation group (32 cases), a Chinese medicine plus acupuncture group (33 cases), a Chinese medicine and acupuncture plus rehabilitation group (37 cases and a Western medicine group (32 cases). Shenlong Jiannao Tang (参龙健脑汤) consists of Ren Shen (Radix Ginseng) 6 g, He Shou Wu (Radix Polygoni Multiflori) 15 g, Yin Yang Huo (Herba Epimedii) 15 g, Di Long (Lumbricus) 10 g, Chuan Xiong (Rhizoma Ligustici Chuanxiong) 10 g, Yuan Zhi (Radix Polygalae) 10 g and Chang Pu (Calamus) 15 g. The Chinese decoction was orally taken 300 mL a dose everyday in 2 potions for 3 months as a course of treatment. Filiform needles were perpendicularly inserted into Baihui (GV 20), Fengfu (GV 16), Fengchi (GB 20), Taiyang (EX-HN5), Hegu (LI 4), Taichong (LR 3), Sishencong (EX-HN1) and Yintang (EX-HN3). After the needling sensation was attained, it was retained for 20–25 min. Acupuncture was performed 3 times a week, on Tuesdays, Thursdays and Saturdays, 12 times as a course of treatment, for 2–3 courses. Rehabilitation therapy, such as training attention, improving thinking ability, piecing together pattern, drawing picture and counting balls, was carried out one hour a day, 3 times a week, on Mondays, Wednesdays and Fridays, 12 times as a course of treatment, for 2–3 courses. Piracetam (produced by Shijiazhuang Zhongnuo Company with the batch number 05045007) was orally taken 1.6 g a time, 3 times a day, for 3 months. Examinations were carried out and symptoms were scored before and after treatment.

Methods for Evaluating Curative Effect
The curative effect on dementia was judged in reference to The guidance Principle of Clinical Research on New Chinese Medicines for Treatment of Dementia promulgated by the Health Ministry in 1995. MMSE score was used as main reference index. Nimodipine formula was used as follows: ((score after treatment – score before treatment) ÷ score before treatment) × 100%. Assessment criteria: Basic control, nearly full mark (≥28 score); obvious effect ≥20%; effectiveness ≥12%-19%; ineffectiveness <12% and deterioration ≥20%. The curative effect on cognitive function and behavioral ability was judged with Nimodipine formula: ((score after treatment – score before treatment) ÷ score before treatment) × 100%. Assessment criteria: Basic control, nearly full mark; obvious effect ≥20%; effectiveness ≥12%-19%; ineffectiveness <12% and deterioration ≥20%.

Indexes for Observation
HDS, BBS and MMSE were used to diagnose dementia and evaluate the curative effect in improving intelligence.

Statistical Analysis
SPSS12.0 software was used for statistical analysis. All the results were expressed with mean ± standard deviation. Analysis of Variance was used as main statistical method.

RESULTS
Comparison of Curative Effects after Treatment in the 4 Groups.
As showed in Table 1, there was no significant difference in the curative effect among the 4 groups ($P>0.05$)

Comparison of BBS Scores before and after Treatment
BBS score, living ability and daily habit after treatment did not significantly reduced as compared with those before treatment in the 4 groups. The score for living ability after treatment was obviously reduced as compared with that before treatment in the Chinese medicine and acupuncture plus recovery group ($P<0.01$, Table 2).

Comparison of Cognitive Function before and after Treatment in the Groups
MMSE score, directional ability, calculating ability, short-term memory and linguistic ability did not significantly enhanced after treatment in the 4 groups. The score for living ability after treatment was obviously reduced as compared with that before treatment in the Chinese medicine and acupuncture plus rehabilitation group ($P<0.05$, Table 3).

<table>
<thead>
<tr>
<th>Group</th>
<th>Cases</th>
<th>Control</th>
<th>Obvious effect cases (%)</th>
<th>Effectiveness Cases (%)</th>
<th>Ineffectiveness</th>
<th>Total effective cases (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chinese medicine + rehabilitation</td>
<td>32</td>
<td>0</td>
<td>6 (18.8)</td>
<td>13(40.6)</td>
<td>13 (40.6)</td>
<td>19 (59.4)</td>
</tr>
<tr>
<td>Chinese medicine + acupuncture</td>
<td>33</td>
<td>0</td>
<td>8 (24.2)</td>
<td>12 (36.4)</td>
<td>13 (39.4)</td>
<td>20 (60.6)</td>
</tr>
<tr>
<td>Chinese medicine + rehabilitation + acupuncture</td>
<td>37</td>
<td>0</td>
<td>9 (24.3)</td>
<td>17 (46.0)</td>
<td>11 (29.7)</td>
<td>26 (70.7)</td>
</tr>
<tr>
<td>Piracetam</td>
<td>32</td>
<td>0</td>
<td>6 (18.8)</td>
<td>11 (34.4)</td>
<td>15 (46.9)</td>
<td>17 (53.1)</td>
</tr>
</tbody>
</table>
Table 2. Comparison of BBS scores before and after treatment in the 4 groups of vascular dementia patients (\( \bar{x} \pm s \))

<table>
<thead>
<tr>
<th>Group</th>
<th>Cases</th>
<th>BBS score Before treatment</th>
<th>Living ability Before treatment</th>
<th>Daily habit Before treatment</th>
<th>BBS score After treatment</th>
<th>Living ability After treatment</th>
<th>Daily habit After treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chinese medicine + rehabilitation</td>
<td>32</td>
<td>19.82±4.66</td>
<td>17.48±3.42</td>
<td>6.46±2.43</td>
<td>17.48±3.42</td>
<td>6.46±2.43</td>
<td>4.42±1.78</td>
</tr>
<tr>
<td>Chinese medicine + acupuncture</td>
<td>33</td>
<td>20.63±4.46</td>
<td>17.74±3.63</td>
<td>6.78±2.28</td>
<td>17.74±3.63</td>
<td>6.78±2.28</td>
<td>4.67±1.85</td>
</tr>
<tr>
<td>Chinese medicine + recovery + acupuncture</td>
<td>37</td>
<td>20.84±4.28</td>
<td>17.26±3.43</td>
<td>6.42±1.78</td>
<td>17.26±3.43</td>
<td>6.42±1.78</td>
<td>4.32±1.78</td>
</tr>
<tr>
<td>Piracetam</td>
<td>32</td>
<td>19.66±4.46</td>
<td>17.85±3.58</td>
<td>5.24±1.87</td>
<td>17.85±3.58</td>
<td>5.24±1.87</td>
<td>4.67±1.85</td>
</tr>
</tbody>
</table>

Note: As compared with the datum before treatment, *\( t =3.127, \( P<0.01 \).

Table 3. Comparison of MMSE score before and after treatment in the 4 groups of vascular dementia patients (\( \bar{x} \pm s \))

<table>
<thead>
<tr>
<th>Group</th>
<th>Cases</th>
<th>Cognition Before treatment</th>
<th>Calculating ability Before treatment</th>
<th>Memory Before treatment</th>
<th>MMSE score After treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chinese medicine + rehabilitation</td>
<td>32</td>
<td>5.67±2.42</td>
<td>2.76±1.46</td>
<td>2.67±0.36</td>
<td>18.76±4.24</td>
</tr>
<tr>
<td>Chinese medicine + acupuncture</td>
<td>33</td>
<td>7.45±2.76</td>
<td>3.27±1.63</td>
<td>2.84±0.44</td>
<td>19.78±4.38</td>
</tr>
<tr>
<td>Chinese medicine + recovery + acupuncture</td>
<td>37</td>
<td>5.84±2.48</td>
<td>2.84±1.48</td>
<td>2.76±0.38</td>
<td>18.64±3.82</td>
</tr>
<tr>
<td>Piracetam</td>
<td>32</td>
<td>8.16±2.67</td>
<td>2.72±1.53</td>
<td>2.84±0.32</td>
<td>20.82±4.72</td>
</tr>
</tbody>
</table>

Note: As compared with the datum before treatment, *\( t=2.522, \( P<0.05 \).

DISCUSSION

VD is a syndrome characterized by cognitive damage due to ischemia and anoxia. At present, drugs for expanding cerebral blood vessels and drugs for improving cerebral metabolism can be used to treat VD. Piracetam, a drug for improving cerebral metabolism, can promote the use of phospholipid and amino acids by the brain, strengthen the synthesis of protein in the brain, promote repair of cerebral cells and transmission of information, and improve cerebral damage caused by anoxia. Piracetam has certain curative effect on VD.3

Dementia belongs to category of “cerebral disease” in TCM. TCM holds that the brain is a place for yang-qi to gather, and that blood stasis, turbid phlegm and other pathological products accumulated in brain become important factors to cause cerebral disease. Because the Du Channel goes upward into brain and downward to kidney, treatment from the Du Channel can nourish kidney, reinforce essence and benefit brain, and acupuncture can stimulate corresponding nerves to take the effect of strengthening the brain and improving intelligence. Acupuncture at Baihui (GV 20), Fengfu (GV 16), Fengchi (GB 20), Taiyang (EX-HN5), Hegu (LI 4), Taichong (LR 3), Sishencong (EX-HN1) and Yintang (EX-HN3) can regulate marrow, supplement deficiency and purge excess.3 Rehabilitation training aims at minimizing the dysfunction of mental life and social life of VD patients. Cognitive training is helpful to remodeling cerebral function. Training attention, directional ability, thinking ability and daily life can promote the repair of cerebral cells and transmission of information.4 Shenlong Jiannao Tang (参龙健脑汤) composed of Ren Shen (Radix Ginseng), He Shou Wu (Radix Polygoni Multiflori), Yin Yang Huo (Herba Epimedii), Di Long (Lumbricus), Chuan Xiong (Rhzoma Ligustici Chuanxiong), Yuan Zhi (Radix Polygalae) and Chang Pu (Calamus) can nourish kidney, reinforce essence, supplement qi, promote blood circulation, strengthen brain and improve intelligence. Experiments have shown that Shenlong Jiannao Tang can obviously improve memory of the D-Galactose-induced cerebral aging rats, enhance Superoxide Dismutase activity in cerebral tissue and reduce Malondialdehyde content.9, 10 To sum up, Chinese medicine for nourishing kidney, promoting blood circulation, strengthening brain and improving int-elligence, acupuncture for stimulating thinking ability, and rehabilitation training for improving intelligence will obviously improve the cognitive and behavioral dysfunction of senile VD patients.

The scales mainly used to diagnose VD inevitably lead to difference in detection rate and evaluation of curative effect. In the present study, VD patients were comprehensively treated by Chinese medicine and acupuncture plus rehabilitation, with BBS and MMSE scales used for detection. The preliminarily result shows...
that the comprehensive treatment of Chinese medicine and acupuncture plus rehabilitation is superior to other treatments \((P<0.05)\), and it can obviously improve short-term memory and directional ability of VD patients and enhance the daily living ability of patients with mild cognitive dysfunction.

REFERENCES


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