Clinical Study with Randomized Control on the Therapy of Integrated Chinese and Western Medicine in Treating Neurological Autoimmune Diseases: A Meta-Analysis

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Objective: The main objective of this study is to evaluate the effects of integrated Chinese and Western medicine in the treatment of neurological autoimmune diseases. Materials and Methods: The literature was comprehensively searched to collect the randomized controlled trials about integrated Chinese and Western medicine in the treatment of neurological autoimmune diseases. Neurological autoimmune diseases mainly occur in the central nervous system (CNS) and peripheral nervous system. Therefore, multiple sclerosis (MS) was chosen as the representative in the CNS, and Guillain–Barre syndrome (GBS) was chosen as the representative in the peripheral nervous system. Extended Disability Status Scale (EDSS) score, effective rate, clinical symptom score, neurological functional sign score, recurrence frequency, and incidence rate of adverse reactions were chosen as the markers of outcome variables of MS, and the effective rate and Hughes score were also chosen as the markers of outcome variables of GBS. Results: For MS, the results showed that there was a significant difference in statistical analysis between the experimental group and the control group in EDSS score, the effective rate, and the recurrence frequency. However, through the comparison of clinical symptom score, neurological functional sign score, and incidence rate of adverse reaction of both two groups, the results showed that there was no significant difference in the statistical analysis. For GBS, through the comparison of effective rate and Hughes score of both two groups, the results showed that there was a significant difference in statistical analysis. Conclusions: The study demonstrated that compared with Western medicine, the therapy of integrated Chinese and Western medicine was more effective in treating neurological autoimmune diseases.

Keywords: Guillain–Barre syndrome, integrated Chinese and Western medicine, meta-analysis, multiple sclerosis, randomized controlled trial

INTRODUCTION
Neurological autoimmune diseases mainly occur in the central nervous system (CNS) as well as in the peripheral nervous system, and their pathogenesis is related to antineuron autoantibodies. Multiple sclerosis (MS) was chosen as the representative in the CNS and Guillain–Barre syndrome (GBS) was chosen as the representative in the peripheral nervous system. A meta-analysis was carried out so that the therapeutic effect of integrated Chinese and Western medicine on neurological autoimmune diseases was studied.

MS is an inflammatory demyelinating disease of the CNS, which affects more than two million people in the world. Especially, it is the main cause of nontraumatic neurological dysfunction in young people in North America and Europe. Immune disorders of MS are considered to be multifactorial, involving genetic susceptibility, epigenetics and postgenomic events, and environmental factors. GBS, also known as...
In the acute phase, MS is adopted with high-dose glucocorticoid pulse therapy. In the remission phase, the aim of drug therapy is to control or delay the progression of the disease. At present, researchers have designed a number of disease-modifying drugs for different biological signaling pathways, which can effectively prevent the recurrence or reduce the frequency of recurrence, such as interferon-beta, glatiramer acetate, fingolimod, and teriflunomide. Although disease-modifying drugs can reduce the frequency of recurrence, the occurrence of adverse reactions and the high price of drugs lead patients to bear great risks and heavy burdens. Treatments for GBS include plasma exchange, immunoglobulin, glucocorticoids, immunosuppressive agents, and symptomatic supportive therapy. However, take plasma exchange for an example, not only there are many side effects of plasma exchange, but also the relevant operation is complicated and risky. Compared with other treatments, although the therapy with immunoglobulin is relatively easy and safe to operate, it is still very expensive. Therefore, it is imperative to find new drug therapies.

Although MS has no definitive nomenclature in the name of traditional Chinese medicine (TCM), according to its different clinical manifestations, it is called as “flaccidity syndrome,” “visual fainting,” “green blindness,” “vertigo,” and so on. Kidney deficiency is the root of the disease, while the evil excess is the tip of the disease. In other word, healthy qi deficiency-evil excess and deficiency-excess complex are the basic pathogenesis. Long-term clinical practice of many doctors showed that TCM can improve patients’ symptoms and signs, prolong remission, prevent recurrence, reduce side effects of glucocorticoid and immunosuppressive agents, and reduce disability.

GBS belongs to the category of “flaccidity syndrome” in TCM. Its pathogenesis is related to dampness in the external, while involving the deficiency of lung, spleen–stomach, liver, and kidney in the internal. At present, there is no unified standard for the syndrome differentiation of TCM in GBS. Wang divided the disease into four types of TCM syndrome differentiation: qi and blood stasis stagnation type, spleen and kidney deficiency type, dampness-heat infiltration type, and nutrient-defense disorder type; Qiao et al. divided the disease into Yang-Qi deficiency type, nutrient-blood deficiency type, and Sinew-vessel disharmony type; and Zhi and Li divided the disease into spleen deficiency and qi-weak type, spleen and kidney in deficiency type, and spleen and kidney Yang deficiency. Wang et al. believed that the TCM syndrome differentiation was not limited to the diagnosis of the name of the Western medicine. The application of TCM syndrome differentiation is flexible, and the efficacy of the treatment combining syndrome differentiation with disease differentiation is better than that of simple Western medicine.

A number of studies have shown that the therapy of integrated Chinese and Western medicine in treating neurological autoimmune diseases has achieved good results. However, these trials are mostly small-randomized controlled trials (RCTs). Here, we conducted a meta-analysis to assess the effectiveness of TCM on MS and GBS, providing more reliable evidence-based medical evidence for clinical practice.

**Materials and Methods**

**Search strategy**

The scope of the search included the following databases: China National Knowledge Infrastructure (CNKI), Chinese Biomedical Literature Database (CBM), Wan Fang Database, Chinese VIP database, PubMed and Cochrane Library. For MS, we chose “multiple sclerosis or MS” and “traditional Chinese medicine or herb or acupuncture or integrated Chinese and Western medicine” as the search terms. For GBS, the search strategy consisted with the following medical terms: “Guillain-Barre syndrome or GBS” and “traditional Chinese medicine or herb or acupuncture or integrated Chinese and Western medicine.” The time frame was ranged from January 1, 2000 to December 31, 2017 and the search language is not limited.

**Inclusion criteria**

1. RCTs
2. The test subjects: Participants with MS and GBS after definite diagnosis
3. The intervention of the experimental group was treated with TCM or acupuncture on the basis of Western medicine, while the control group was treated with Western medicine solely
4. The original literature is published literature.

**Exclusion criteria**

1. The same data were published repeatedly, excluding multiple literature published for the same research population and select only the highest quality or the largest sample size
2. The sample size is <10 or the sample size is unknown
3. The data in the literature are incomplete or cannot be extracted
4. Animal experiments.

**Data extraction and analysis**

Two researchers independently extracted and evaluated the quality of the literature according to the predefined inclusion criteria. Differences were resolved by a discussion. If the opinions are still not unified after discussion, the experts in this field who are engaged in neuroimmunology will make
judgments. The contents of the literature extraction include: disease, author, sample size, experimental group treatment, control group treatment, treatment duration, follow-up period, the markers of outcome variables (MS: Extended Disability Status Scale [EDSS] score, effective rate, clinical symptom score, neurological functional sign score, recurrence frequency, incidence rate of adverse reactions; GBS: effective rate, Hughes score), random sequence generation, blind method, lost to follow-up and exit, and allocation concealment.

Methodology quality assessment
The quality of the included studies was assessed based on Jadad scale with a total score of 7 points. A score of 4–7 points denoted a high-quality study, while a score of <4 points denoted a low-quality study. The contents of the assessment mainly include whether to use random sequence generation, randomized allocation and concealment, blind method, lost to follow-up, and exit. Because of the low quality of the literature, a definition of 1 point or more could be entered into the meta-analysis.

Statistical analysis
Review Manager 5.3 (The Nordic Cochrane Centre, The Cochrane Collaboration, Copenhagen, Denmark) was used to estimate the pooled mean difference (MD) for continuous outcomes (such as EDSS score, clinical symptom score, neurological functional sign score, recurrence frequency, and Hughes score), and odds ratio (OR) risk for dichotomous outcome measures (such as effective rate and incidence rate of adverse reactions). Both data were statistically different at $P < 0.05$. A heterogeneity test was carried out by Chi-squared test ($P = 0.10$ was used as the test level) and the statistic $I^2$. When $F < 50\%$ and $P > 0.10$, the results were considered to be homogeneous and the fixed effect model was used; otherwise, the random effect model was used.

RESULTS
Search results
From January 1, 2000 to December 31, 2017, a total of 365 articles were retrieved, including 195 CNKI, 24 SinoMed, 93 Wan-Fang databases, 41 VIP, 5 PubMed, and 7 Cochrane Library [Figure 1]. After excluding the repetitive literature, nonRCT studies, animal experiments, the studies with too few data or incomplete data or unspecified diagnostic criteria, and finally, 25 articles were included in the literature, including 23 in Chinese and 2 in English.

Study description
A total of 16 articles were included in the study on MS. From 2004 to 2016, a total of 800 participants were included, including a minimum of 23 cases and a maximum of 73 cases. EDSS score was observed in ten studies, and the data could be extracted from nine studies; the effective rate was observed in ten studies, and the data could be extracted from ten studies; the clinical symptom score was observed in four studies, and the data could be extracted from four studies; the neurological functional sign score was observed in three studies, and the data could be extracted from three studies; the recurrence frequency was observed in three studies, and the data could be extracted from three studies; and the incidence rate of adverse reactions was observed in four studies, and the data could be extracted from three studies. A total of nine articles were included in the study on GBS. From 2003 to 2010, 599 participants were included, of which the sample size was at least 35 and the maximum was 100; effective rate was reported in nine studies, and the data could be extracted from nine studies and Hughes score was observed in three studies, and the data could be extracted from three studies. The basic characteristics of the included studies were showed in Table 1.

Quality assessment
The description of quality assessment is shonwn in Table 2.

The Jadad scale was used to assess the quality of included studies. In the use of random methods, all the studies were reported a random grouping method; however, only six studies mentioned “randomization” with details. Only 3 of the 25 studies were adopted single-blind and the rest of the studies was not used blinding. The baseline comparison was conducted for both the experimental group and control group of included studies. The results showed that $P > 0.05$, which meant that both two groups were comparable. In addition, there was no case of shedding.

Meta-analysis results
Extended disability status scale score multiple sclerosis
From all the included studies, the EDSS score was observed in ten studies, the data could be extracted from nine studies. There was a heterogeneity in nine studies ($I^2 = 69.01, P < 0.001, F = 88\%$), so the random effect model was used. Through the comparison of EDSS score of both two groups, the results illustrated that the combined effect of quantity of MD and 95% confidence interval (CI) were $-1.07, (-1.79, -0.36)$, $P < 0.05$, which had significant difference in statistical analysis ($Z = 2.94, P < 0.05$).
Table 1: Characteristics of included studies

<table>
<thead>
<tr>
<th>Disease</th>
<th>Study</th>
<th>Sample size</th>
<th>Invention</th>
<th>Control</th>
<th>Treatment duration</th>
<th>Follow-up period</th>
<th>Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>MS</td>
<td>Wang YH 2006</td>
<td>36</td>
<td>Decoction + control</td>
<td>Glucocorticoids</td>
<td>10-14 weeks</td>
<td>No reported</td>
<td>Effective rate, incidence rate of adverse reactions</td>
</tr>
<tr>
<td></td>
<td>Zhang GZ 2006</td>
<td>30</td>
<td>Decoction + control</td>
<td>Glucocorticoids</td>
<td>2 months</td>
<td>No reported</td>
<td>EDSS, Effective rate, clinical symptom score, neurological functional sign score</td>
</tr>
<tr>
<td></td>
<td>Zhou YL 2016</td>
<td>30</td>
<td>Decoction + control</td>
<td>Glucocorticoids</td>
<td>3 months</td>
<td>No reported</td>
<td>EDSS, Effective rate</td>
</tr>
<tr>
<td></td>
<td>Fan YP 2006</td>
<td>30</td>
<td>Decoction + control</td>
<td>Glucocorticoids</td>
<td>3 – 4 weeks</td>
<td>No reported</td>
<td>Glucocorticoid side effects</td>
</tr>
<tr>
<td></td>
<td>Shi LH 2004</td>
<td>19</td>
<td>Decoction + control</td>
<td>Glucocorticoids</td>
<td>3 months</td>
<td>1 – 2.5 years</td>
<td>EDSS, Effective rate, Recurrence frequency, clinical symptom score, neurological functional sign score</td>
</tr>
<tr>
<td></td>
<td>Li Qian 2012</td>
<td>30</td>
<td>Decoction + control</td>
<td>Glucocorticoids</td>
<td>3 months</td>
<td>No reported</td>
<td>EDSS, Effective rate, clinical symptom score</td>
</tr>
<tr>
<td></td>
<td>Wang JY 2007</td>
<td>32</td>
<td>Decoction + control</td>
<td>Glucocorticoids</td>
<td>3 months</td>
<td>No reported</td>
<td>EDSS, Effective rate, incidence rate of adverse reactions</td>
</tr>
<tr>
<td></td>
<td>Hu YY 2010</td>
<td>35</td>
<td>Decoction + Acupuncture + control</td>
<td>Glucocorticoids, Azathioprine</td>
<td>3 months</td>
<td>No reported</td>
<td>EDSS, Recurrence frequency, clinical symptom score</td>
</tr>
<tr>
<td></td>
<td>Zhang WH 2013</td>
<td>12</td>
<td>Decoction + control</td>
<td>Glucocorticoids</td>
<td>5 – 10 months</td>
<td>1 – 3 years</td>
<td>Recurrence frequency</td>
</tr>
<tr>
<td></td>
<td>Zhuang YS 2013</td>
<td>15</td>
<td>Decoction + Glucocorticoids</td>
<td>Glucocorticoids + Chinese medicine placebo</td>
<td>3 months</td>
<td>No reported</td>
<td>EDSS, Effective rate, clinical symptom score, neurological functional sign score</td>
</tr>
<tr>
<td></td>
<td>Xu XM 2011</td>
<td>38</td>
<td>Decoction + Acupuncture + control</td>
<td>Glucocorticoids</td>
<td>3 months</td>
<td>No reported</td>
<td>Effective rate, EDSS</td>
</tr>
<tr>
<td></td>
<td>Wang Ying 2012</td>
<td>20</td>
<td>Acupuncture + control</td>
<td>Glucocorticoids, Gamma globulin</td>
<td>1 month</td>
<td>No reported</td>
<td>Effective rate, EDSS</td>
</tr>
<tr>
<td></td>
<td>Quispe-Cabanillas JG 2012</td>
<td>16</td>
<td>Electro-acupuncture + control</td>
<td>Sham electro-acupuncture, Immunosuppressants</td>
<td>6 months</td>
<td>No reported</td>
<td>EDSS</td>
</tr>
<tr>
<td></td>
<td>Zhou YQ 2013</td>
<td>14</td>
<td>Decoction + control</td>
<td>Glucocorticoids, Azathioprine gamma globulin</td>
<td>10-12 weeks</td>
<td>10-131 months</td>
<td>Recurrence frequency</td>
</tr>
<tr>
<td></td>
<td>Shi Qing 2007</td>
<td>16</td>
<td>Decoction + control</td>
<td>Glucocorticoids, Azathioprine gamma globulin</td>
<td>4-6 weeks</td>
<td>No reported</td>
<td>Recurrence rate</td>
</tr>
<tr>
<td></td>
<td>Wang YR 2015</td>
<td>30</td>
<td>Decoction + control</td>
<td>Glucocorticoids, Azathioprine gamma globulin</td>
<td>7-9 weeks</td>
<td>No reported</td>
<td>Effective rate, incidence rate of adverse reactions</td>
</tr>
<tr>
<td>GBS</td>
<td>Guo YP 2004</td>
<td>36</td>
<td>Decoction + control</td>
<td>Glucocorticoids, Ranitidine, Supportive treatment</td>
<td>7 days</td>
<td>No reported</td>
<td>Effective rate</td>
</tr>
<tr>
<td></td>
<td>Li SG 2004</td>
<td>20</td>
<td>Decoction + control</td>
<td>Glucocorticoids, Antibiotic, Supportive treatment</td>
<td>6 weeks</td>
<td>No reported</td>
<td>Effective rate</td>
</tr>
<tr>
<td></td>
<td>Shangguan Ying 2009</td>
<td>40</td>
<td>Decoction + control</td>
<td>Glucocorticoids, Gamma globulin, Antiviral therapy, Supportive treatment, Functional exercise</td>
<td>1 month</td>
<td>No reported</td>
<td>Effective rate, Hughes score</td>
</tr>
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Contd...
It is indicated that the experimental group has an advantage over the control group in reducing the EDSS score [Figure 2].

**Effective rate multiple sclerosis**

Effective rate was observed in ten studies, and the data could be extracted from ten studies. There was no heterogeneity in ten studies ($\chi^2 = 1.95, P = 0.99, I^2 = 0\%$), so the fixed effect model was used. The results illustrated that the combined effect of quantity of OR and 95% CI were 5.91, (3.51, 9.94), $P < 0.001$, which had significant difference in statistical analysis ($Z = 6.70, P < 0.001$). It is indicated that the experimental group is better than the control group from the curative effect perspective [Figure 3].
Clinical symptom score multiple sclerosis
The clinical symptom score was observed in four studies, and the data could be extracted from four studies. There was a heterogeneity in four studies ($\chi^2 = 70.99$, $P < 0.001$, $I^2 = 96\%$), so the random effect model was used. Through the comparison of the clinical symptom score of both two groups, the results illustrated that the combined effect of quantity of MD and 95% CI were 0.30, (−3.71, 4.31), $P = 0.88$, which had no difference in statistical analysis ($Z = 0.15$, $P = 0.88$). It is indicated that the difference between the experimental group and the control group is not obvious in improving the clinical symptoms [Figure 4].

Neurological functional sign score multiple sclerosis
The neurological functional sign score was observed in three studies, and the data could be extracted from three studies. There was a heterogeneity in three studies ($\chi^2 = 44.83$, $P < 0.001$, $I^2 = 96\%$), so the random effect model was used. Through the comparison of the neurological functional sign score of both two groups, the results illustrated that the combined effect of quantity of MD and 95% CI were −2.11, (−6.86, 2.64), $P = 0.38$, which had no significant difference in statistical analysis ($Z = 0.87$, $P = 0.38$). It is indicated that there is no significant difference between the experimental group and the control group in improving the neurological functional signs [Figure 5].

Recurrence frequency multiple sclerosis
The recurrence frequency was observed in three studies, and the data could be extracted from three studies. There was a tiny heterogeneity in three studies ($\chi^2 = 2.03$, $P = 0.36$, $I^2 = 1\%$), so the fixed effect model was used. The results illustrated that the combined effect of quantity of MD and 95% CI were −0.41, (−0.56, −0.26), $P < 0.001$, which had significant
difference in statistical analysis ($Z = 5.27, P < 0.001$). It is indicated that the experimental group has an advantage over the control group in preventing recurrence of MS [Figure 6].

**Incidence rate of adverse reactions multiple sclerosis**

The incidence rate of adverse reactions was observed in four studies, the data could be extracted from three studies. There was a heterogeneity in three studies ($\chi^2 = 5.18, P = 0.07, I = 61\%$), so the random effect model was used. The results illustrated that the combined effect of quantity of OR and 95% CI were 0.20, (0.03, 1.42), $P > 0.05$, which had no significant difference in statistical analysis ($Z = 1.61, P = 0.11$). It is indicated that there was no significant difference in the incidence of adverse reactions between the experimental group and the control group [Figure 7].

**Effective rate Guillain–Barre syndrome**

A total of nine studies were (out of nine studies) observed effective rate. There was no heterogeneity in the total nine studies ($\chi^2 = 6.54, P = 0.59, I = 0\%$), so the fixed effect model was adopted. The combined effect of quantity of OR and the 95% CI were 3.38, (1.87, 6.14), which showed statistically significant differences ($Z = 4.01, P < 0.001$). The results implicated that the curative effect of the experimental group was better than control group [Figure 8].

**Hughes score Guillain–Barre syndrome**

A total of three studies were (out of nine studies) observed Hughes score. There was not obvious heterogeneity in three studies ($\chi^2 = 3.52, P = 0.17, I = 43\%$), so the fixed effect model...
was adopted. The combined effect of quantity of MD and 95% CI were $-0.41, (-0.75, -0.07)$, which showed statistically significant differences ($Z = 2.33, P = 0.02$). The results implicated that the experimental group had an advantage over the control group in terms of improving limb function [Figure 9].

**Risk of bias in included studies**

Funnel graphs were made by RevMan 5.3 to evaluate the risk of bias of the included studies. There was no obvious bias in the funnel graphs of effective rate of both MS and GBS, indicating that the relevant experimental design was rigorous and the study method was good, especially the allocation concealment was done well. These figures were beneficial to expound the results of the meta-analysis. The scatter graph of EDSS score and the clinical symptom score showed apparent publication bias. Due to the small number of studies included, there was still a publication bias in the scatter graph of neurological functional sign score.

![Forest map of incidence rate of adverse reactions comparison in study group and control group multiple sclerosis](image1)

**Figure 7:** Forest map of incidence rate of adverse reactions comparison in study group and control group multiple sclerosis

![Forest map of effective rate comparison in study group and control group (GBS)](image2)

**Figure 8:** Forest map of effective rate comparison in study group and control group (GBS)

![Forest map of Hughes Score comparison in study group and control group (GBS)](image3)

**Figure 9:** Forest map of Hughes Score comparison in study group and control group (GBS)
and incidence rate of adverse reactions, as well as in the funnel graph of Hughes score. In the case of recurrence frequency of MS, the two scatter points were symmetrically distributed on both sides of the vertical line at the top of the funnel, but one scatter was located in the lower part of the funnel. Therefore, the scatter graph of recurrence frequency also showed a publication bias. It was indicated that the obvious publication bias was a very important factor that may lead to the lack of statistical difference in the results of meta-analysis [Figures 10-17].

**DISCUSSIONS**

Neurological autoimmune diseases are autoimmune diseases in which the autoimmune cells and immune molecules attack the nervous system as a pathological mechanism, leading to pathological changes such as neuronal or axonal injury and myelin loss. The continuous progress of the diseases leads patients to bear great physical and mental burdens. At present, the treatments of neurological autoimmune diseases are mainly based on comprehensive therapy, including immunotherapy, glucocorticoids, and other interventions. The therapeutic effect is relatively limited and there is no ideal method. A number of studies have shown that the combination of TCM and Western medicine in the treatment of neurological autoimmune diseases has a good clinical effect.

In this study, meta-analysis was used to analyze the published RCTs using integrated Chinese and Western medicine in the treatment of MS and GBS. Eventually, 25 studies were included and the results showed that the therapy of integrated Chinese and Western medicine in treating MS improved the efficiency, reduced the recurrence frequency, and improved nerve defect compared with the Western medicine treatment. In the case of GBS, the therapy of integrated Chinese and Western medicine not only has obvious efficiency but also improves the physical function of the limbs. It further demonstrates that integrated Chinese and Western medicine has a remarkable clinical curative effect in the treatment of neurological autoimmune diseases and is worthy of clinical promotion. However, there was no statistically significant difference between the experimental group and the control group in the clinical symptom score, neurological physical function score, and incidence rate of adverse reactions of MS. It may be related to the following factors: (1) the published literature is biased; (2) the quality of the literature is generally low; (3) The scoring criteria of clinical symptoms score and neurological functional sign score may be different; and (4) Less literature
on MS involving incidence rate of adverse reactions have been included.

In the 25 studies included, all the studies described the baseline status of each group and all the groups were comparable after statistical processing. The grouping methods adopted were all mentioned random grouping. Among them, only six studies have indicated that they were grouped by random number table method. The rest of the studies did not describe the detailed random method. Only one was hidden by an envelope, and the rest of the studies were not mentioned. Three of the 25 studies were used a single-blind method, while the rest was not mentioned. In addition, the duration of treatment in each study ranged from 1 to 10 months, and the follow-up time also varied from 1 year to 10 years. Even in some studies, the follow-up time was not indicated. Based on the above information, the quality of the literature is generally low. Many aspects need to be improved to ameliorate the quality of the literature, such as random grouping method, the use of blind methods, lost to follow-up and exit, the control of treatment duration, and the arrangement of follow-up time. Therefore, randomized clinical trials with large sample, multicenter, double blind are needed to study the efficacy of integrated Chinese and Western medicine in the treatment of neurological autoimmune diseases. Furthermore, we should form a unified evaluation criterion for the outcome effect indicators of diseases, pay attention to the safety evaluation of TCM, and establish a unified evaluation standard that reflects the medical efficacy of TCM characteristics, so as to provide better evidence-based medical evidence for the clinical practice.

CONCLUSION
Through the available randomized controlled clinical trials, we conducted a meta-analysis and found that integrated Chinese and western medicine had a remarkable clinical curative effect in the treatment of neurological autoimmune diseases, and was worthy of clinical promotion.

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Conflicts of interest
There are no conflicts of interest.

REFERENCES

Meta-analysis of therapeutic effects on NAD treated by ICAWM