LETTER

Effect of acupuncture treatment for weight loss on gut flora in patients with simple obesity

INTRODUCTION

Acupuncture is used in the management of obesity, but the mechanisms of its action are not known. We explored the effect of abdominal acupuncture treatment on body mass index (BMI) and on intestinal flora.

MATERIALS AND METHODS

The study was approved by the Ethics Committee of Shanghai Eighth Hospital. Informed consent was obtained, and the study was based on the STANDARDS FOR REPORTING INTERVENTIONS IN CONTROLLED TRIALS OF ACUPUNCTURE (STRICTA) GUIDELINES.1

A total of 45 cases, all women, were invited from the specialist clinic for simple obesity using acupuncture at Shanghai Eighth Hospital. Cases were randomly divided into one of 3 groups: 2 treatment groups and 1 control group (15 cases each). The women ranged between 29–1 control group (15 cases each). The women ranged between 29–13.3 years. Women ranged between 29–13 years. Women ranged between 29–13 years. Women ranged between 29–13 years.

Patients were included if they had in age, mean age 48.8±SD 13.3 years. Women ranged between 29–1 control group (15 cases each). The women ranged between 29–13 years. Women ranged between 29–13 years. Women ranged between 29–13 years.

RESULTS

The BMI values of the two treatment groups decreased significantly after treatment (p<0.05): from 27.65±1.26 to 25.58±1.47 and from 27.76±1.12 to 25.27±1.03, respectively. Mean BMI for the control group were 27.52±1.02 (before treatment) and 27.16±1.09 (after treatment). There was no significant difference between the treatment groups (p>0.05).

As shown in table 1, in both treatment groups, Lactobacillus and Bifidobacterium increased after treatment but Bacteroides and Clostridium perfringens (treatment group 1 only) decreased (p<0.05). In the control group there were no statistical significant changes (p>0.05).

DISCUSSION

In this study, similar treatments by different clinical acupuncturists had similar effects, indicating that abdominal acupuncture has a significant effect on simple obesity regardless of the acupuncturist.

Lactobacillus and Bifidobacterium increased after acupuncture, but Bacteroides and C. perfringens (in treatment group 1 only) decreased. The results show that acupuncture may have an ecological role in the gastrointestinal tract, activating gastrointestinal function by adjusting the body’s immune system.3 By restoring the intestinal microbial balance, acupuncture has been shown to be effective in the treatment of chronic constipation, chronic diarrhea, acute bacillary dysentery and intestinal bowel syndrome.4

With regards to the possible relationship of Bacteroidetes in the gut to obesity, Bäckhed et al found that Bacteroides suppressed intestinal FIAF (fasting-induced adipocyte factor), which promotes adiposity. Under normal circumstances, FIAF is a member of the angiopterin-like family of proteins, which may inhibit the absorption and storage of monosaccharides as fat. Increased Bacteroides levels may cause the body to absorb more and become more obese.5 Additionally, Nagwa et al found that Firmicutes and Bacteroidetes are both increased in obese persons; the proportions of both were statistically significantly increased in the obese group compared to the normal weight group.6 However, other literature available shows that Bacteroides are negatively correlated with percentage of body fat and body weight.7 In this study, we noted the effect of acupuncture treatment on Bacteroides. Alteration in the ratio of Bacteroidetes drives a change in fermentation patterns, which may explain weight loss.

In conclusion, acupuncture may have an ecological role in the gastrointestinal tract. Alteration of Bacteroidetes after acupuncture treatment may be one of the mechanisms for the weight loss.

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Contributors ZX and RL were responsible for the majority of the study design, bench work and data analysis. CZ participated in the clinical sample collection and statistical analysis, and also contributed to the interpretation of the final results. ML participated in the study design, data interpretation and helped draft the manuscript. All authors read and approved the final manuscript.

Competing interests None.

Patient consent Obtained.

Ethics approval The study was approved by the Ethics Committee of Shanghai Eight People’s Hospital.

Provenance and peer review Not commissioned; internally peer reviewed.

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REFERENCES


Table 1  Gut microbiota in the log colony-forming units per/ml (logXG±SD) from obese of treatment and control group

<table>
<thead>
<tr>
<th>Type of bacteria</th>
<th>Treatment group 1 Before</th>
<th>Treatment group 1 After</th>
<th>Treatment group 2 Before</th>
<th>Treatment group 2 After</th>
<th>Control group Before</th>
<th>Control group After</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total aerobic</td>
<td>8.32±0.63</td>
<td>10.66±2.39</td>
<td>7.44±0.29</td>
<td>11.35±1.08</td>
<td>7.49±0.86</td>
<td>8.43±0.75</td>
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<tr>
<td>Lactobacillus</td>
<td>2.86±0.58</td>
<td>4.97±0.36*</td>
<td>2.13±0.98</td>
<td>5.37±0.25*</td>
<td>2.41±0.30</td>
<td>3.06±0.82</td>
</tr>
<tr>
<td>Actinobacterium</td>
<td>5.59±1.41</td>
<td>6.42±1.29</td>
<td>4.33±1.84</td>
<td>6.67±1.30</td>
<td>6.69±1.72</td>
<td>5.83±1.36</td>
</tr>
<tr>
<td>Total anaerobic</td>
<td>48.25±14.13</td>
<td>40.67±12.06</td>
<td>50.45±17.14</td>
<td>38.46±11.13</td>
<td>45.34±15.39</td>
<td>41.74±15.63</td>
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<tr>
<td>Escherichia</td>
<td>7.16±0.42</td>
<td>6.42±0.78</td>
<td>7.43±0.65</td>
<td>7.54±0.27</td>
<td>6.28±0.76</td>
<td>7.57±0.13</td>
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<tr>
<td>Enterococcus</td>
<td>6.02±0.96</td>
<td>7.26±0.35</td>
<td>6.92±0.27</td>
<td>7.73±0.18</td>
<td>6.34±0.67</td>
<td>6.21±0.89</td>
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<td>Blidobacterium</td>
<td>9.26±0.38</td>
<td>11.47±2.93*</td>
<td>8.49±0.66</td>
<td>12.50±2.65*</td>
<td>8.61±0.40</td>
<td>10.47±0.08</td>
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<tr>
<td>Bacteroides</td>
<td>29.85±7.30</td>
<td>14.92±2.85*</td>
<td>32.51±9.37</td>
<td>16.35±4.22*</td>
<td>30.57±7.48</td>
<td>25.23±8.84</td>
</tr>
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<td>Faecalibacterium</td>
<td>7.17±0.48</td>
<td>6.81±1.72</td>
<td>6.80±0.75</td>
<td>5.34±1.67</td>
<td>7.68±0.46</td>
<td>6.18±0.54</td>
</tr>
<tr>
<td>Clostridum perfringens</td>
<td>3.58±0.97</td>
<td>1.60±0.33*</td>
<td>2.47±0.61</td>
<td>2.39±0.56</td>
<td>2.89±1.71</td>
<td>2.02±0.63</td>
</tr>
<tr>
<td>Clostridum botulinum</td>
<td>1.92±0.83</td>
<td>1.24±0.59</td>
<td>1.36±0.82</td>
<td>1.47±0.05</td>
<td>1.53±0.14</td>
<td>1.66±0.72</td>
</tr>
<tr>
<td>Eubacterium</td>
<td>3.51±0.28</td>
<td>3.64±0.96</td>
<td>2.96±0.87</td>
<td>2.51±0.29</td>
<td>3.63±0.45</td>
<td>3.25±0.70</td>
</tr>
</tbody>
</table>

*Statistical significant difference between the groups before and after treatment (p>0.05).
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