Treatement of obesity by catgut embedding: an evidence-based systematic analysis

Catgut embedding therapy has been used for thousands of years in traditional Chinese medicine for the treatment of many conditions, such as perimenopausal syndrome, chronic urticaria, depressive neurosis, refractory insomnia, obesity, sciatica, etc. Treating obesity with catgut embedding is commonly believed to be effective and better than Western medical practice. It involves weekly infusing 10 to 15 surgical chromic catgut sutures into the subcutaneous tissue of the extremities and abdomen with a specialised needle under aseptic precautions. Even though this traditional treatment is considered safe, a complication has recently been reported in this journal.1

There is still no evidence-based consensus on the contribution of catgut embedding to the treatment of obesity and treatment results do not always achieve the patients’ expectations. Thus, the aim of this study is to explore the efficacy of catgut embedding treatment in obesity and to develop specific recommendations based on the review of medical literature.

PubMed to January 2012 was searched for any study in English or Chinese evaluating the outcome of catgut embedding for the treatment of obesity. The terms used in the search were: ‘catgut’, ‘embedding’, ‘obesity’ and ‘acupuncture’. Reference lists of obtained articles were searched as well. Studies including any laboratory values were excluded from this analysis.

One investigator selected the articles for inclusion. Two investigators independently abstracted data from all eligible studies using a standardised Excel file. These authors retrieved data on study design, study period, study size, patient demographics and treatment outcome. Relevant studies were assigned a level of evidence according to the Oxford Centre for Evidence-Based Medicine 2011 levels of evidence.

The search performed on January 2012 yielded 21 articles pertinent to the topic (table I)—one randomised controlled trial (RCT, level I evidence),2 eight non-RCTs (level II evidence),3–10 and 12 case reports (level V evidence). The sole RCT shows the effective rate in the catgut embedding group was similar to the electroacupuncture group (p > 0.05) and both treatments had significant effects in decreasing waistsline, hip circumference and waist-to-hip ratio (p < 0.05). Five of eight non-RCTs showed that the effectiveness in the catgut embedding group was better than in the acupuncture or electroacupuncture group, with significant differences between groups (p < 0.05).3–7

Table 1 Evidence level I and II studies of catgut embedding for obesity control

<table>
<thead>
<tr>
<th>Reference</th>
<th>No (intervention group, n; control group, n)</th>
<th>p Value</th>
<th>Level of evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Huang and Pan, 20112</td>
<td>60, (catgut embedding, 30; electroacupuncture, 30)</td>
<td>&gt;0.05</td>
<td>I</td>
</tr>
<tr>
<td>Zhang and Fu, 20065</td>
<td>60, (catgut embedding 30; acupuncture 30)</td>
<td>&lt;0.05</td>
<td>II</td>
</tr>
<tr>
<td>Meng and Chen, 20055</td>
<td>96, (catgut embedding 48; acupuncture 48)</td>
<td>&lt;0.05</td>
<td>II</td>
</tr>
<tr>
<td>Xia, 20115</td>
<td>70, (catgut embedding 35; acupuncture 35)</td>
<td>&lt;0.05</td>
<td>II</td>
</tr>
<tr>
<td>Shi et al, 20066</td>
<td>82, (catgut embedding and electroacupuncture 40; electroacupuncture 42)</td>
<td>&lt;0.01</td>
<td>II</td>
</tr>
<tr>
<td>Tang et al, 20097</td>
<td>65, (catgut embedding and electroacupuncture 33; electroacupuncture 32)</td>
<td>&lt;0.05</td>
<td>II</td>
</tr>
<tr>
<td>Wang et al, 20018</td>
<td>90, (catgut embedding 60; acupuncture 30)</td>
<td>&gt;0.05</td>
<td>II</td>
</tr>
<tr>
<td>Li and Tian, 20078</td>
<td>72, (catgut embedding 36; acupuncture 36)</td>
<td>&gt;0.05</td>
<td>II</td>
</tr>
<tr>
<td>Li and Yin, 201010</td>
<td>74, (catgut embedding 36; fenofibrate 38)</td>
<td>&lt;0.01</td>
<td>II</td>
</tr>
</tbody>
</table>

Two other studies found no significant difference between the two groups.8,9 The final study showed significant effect in body weight control in the catgut embedding treatment group10 compared with the control group treated by fenofibrate, which is not a common treatment for obesity.

The eligible studies that met our inclusion criteria were all of evidence level I or II. Most of them used acupuncture as control group for evaluating the efficacy of catgut embedding and reveal the equality or superiority of catgut embedding, but there was no consistency in frequency or duration of treatment or numbers of sutures implanted. In addition, there are no data comparing catgut embedding with orlistat (Xenical, Roche Ltd., Switzerland). Thus, further comparative studies are both justified and necessary to provide more information on the best technique and more rigorous evidence on effectiveness.

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