The Efficacy of Mirror Therapy on Pain, Sensation and Function After Carpal Tunnel Open Surgery

Tugba Karaaslan, Ela Tarakci, Hayri Omer Berkoz

Istanbul University, Istanbul, Turkey

Objective

Carpal tunnel syndrome (CTS) is the most common type of trapped neuropathies that occurs when the median nerve is exposed to pressure within the carpal tunnel at the level of the wrist and post-surgical rehabilitation of patients is of great importance.

The aim of our study was to investigate the efficacy of mirror therapy (MT) applied early after carpal tunnel open surgery on the reduction of pain and improvement of sensation and function.

Methods

In the randomized controlled study with 35 patients who appropriated the inclusion criteria to investigate the efficacy of MT patients were divided into two groups by simple drawing method.

In the control group (n=17), the classical physiotherapy program was applied when the post-operative immobilization period ended, MT was applied to the mirror group (n=18) in addition to this treatment for 20 minutes and a total of 10 sessions in the immobilization period.

Patients who were scheduled for operation due to CTS, evaluated that pain (Visual Analogue Scale-VAS), sense (monofilament test, esthetiometer), function and symptoms (Boston Carpal Tunnel Syndrome Questionnaire-BCTQ, Michigan Hand Outcomes Questionnaire-MHQ, 9 hole peg test-9HPT) before surgery, 3 weeks and 6 weeks after surgery. The SPSS 20.0 statistical program was used in the data analysis of the study and the level of significance was accepted as p<0.05.

The average ages of participants are 48.17±9.72 years in mirror group, 53.06±8.10 years in control group (p>0.05).

There was no statistically significant difference between the groups in terms of demographic features and symptoms at the beginning (p>0.05).

There was a statistically significant difference in pain at rest (p = 0.004) and pain at night (p = 0.037) in favor of mirror group in the 2nd and 3rd measurement results, but there was no significant difference in other parameters (p>0.05).

There was no statistically significant difference in sensory test scores between the groups (p>0.05).

While there was a statistically significant difference in favor of the control group in the first and second measurement results (p = 0.018) and in the second and third measurement results (p = 0.032) in the 9 hole peg test, no significant difference was found in other parameters (p>0.05).

There was no statistically significant difference between the Boston Carpal Tunnel Questionnaire and Michigan Hand Outcomes Questionnaire scores between the groups (p>0.05) (Table 1).

Conclusions

The data obtained from the study indicated that the improvement in the related parameters, the early introduction of mirror therapy to carpal tunnel open surgery after classical methods has been started after immobilization with physiotherapy exercising compared, there was no significant difference between the groups, however, in the reduction of pain in CTS patients, in the improvement of the sense of light touch and in the improvement of function. In the repeated measurements, both groups showed that the treatment had a positive effect at post operative 6th week.

Table 1. Intra-group and inter-group comparison

<table>
<thead>
<tr>
<th></th>
<th>Mirror Group Mean ± SD</th>
<th>Control Group Mean ± SD</th>
<th>p1</th>
<th>p2</th>
<th>p3</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>MT (after)</td>
<td>1. 8,5±2.71</td>
<td>2. 11,0±2.13</td>
<td>3. 7,0±2.36</td>
<td>2. 9,2±3.38</td>
<td>1. 9,0±3.85</td>
<td>3. 6,9±1.22</td>
</tr>
<tr>
<td>MT (after)</td>
<td>1. 16,7±6.31</td>
<td>2. 22,3±14.32</td>
<td>3. 13,8±2.56</td>
<td>15,9±4.48</td>
<td>16,7±4.11</td>
<td>14,5±2.63</td>
</tr>
<tr>
<td>BCTQ</td>
<td>1. 3,5±1.47</td>
<td>2. 2,9±0.62</td>
<td>3. 2,3±0.56</td>
<td>0,047</td>
<td>0,025</td>
<td>0,000</td>
</tr>
<tr>
<td>MHQ</td>
<td>1. 45,2±11.05</td>
<td>2. 40,4±10.42</td>
<td>3. 54,1±7.88</td>
<td>0,787</td>
<td>0,000</td>
<td>0,052</td>
</tr>
</tbody>
</table>

p1: 1st measurement-2nd measurement, p2: 2nd measurement-3rd measurement, p3: 1st measurement-3rd measurement