An Examination by Randomized Control Test of the effectiveness of exercise therapy (Takizawa Program) on bedridden elderly patients

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Key words: bedridden elderly people, exercise therapy, Takizawa program, RCT, ROM

[Abstract]
This report will prove the effectiveness of the Takizawa program and emphasize the importance of exercise therapy for bedridden elderly people. This research was conducted with 145 female examinees from 3 GHSF’s. The patients were categorized by the degree of care and randomly divided into two groups; Exercise group (Ex) and Control group (Co). The degree of ROM increased after therapy showed a significant difference. Those were shoulder flexion, knee extension, and dorsi flexion.

[Purpose]
The current condition of functional training at welfare facilities, where they take care of numerous bedridden people, is considered insufficient. Due to this situation, the disuse syndrome has developed and body functions of bedridden elderly people are rapidly deteriorating.

The Takizawa Program is practiced as an exercise therapy regimen for infirm elderly people at the Geriatric Health Services Facility (GHSF) and geriatrics hospitals; however, the effectiveness of the Takizawa Program has not yet been proved by RCT or other methods.

The aim of this study was to investigate the change of ROM after the takizawa program. Therefore, this report will prove the effectiveness of the program and emphasize the importance of exercise therapy for bedridden elderly people.

[Subject and method]
This research was conducted with 145 female examinees from 3 GHSF’s. Those of 2 GHSF’s are in Niigata prefecture and another one is in Tokyo. The examinees were in good health at the study starting, and have agreed to be tested. The examinees were tested three times a week for three months, between 2003 and 2004.
The patients were categorized by the degree of care and randomly divided into two groups; Exercise group (Ex) and Control group (Co). The evaluation items were Functional Independence Measure (FIM) and the Range of Motion (ROM), such as shoulder flexion, knee extension, dorsi flexion and plantar flexion. This report focuses on the results of the ROM tests.

[Results]

Before starting exercise therapy, the range of the age groups were similar in both Ex. group and Co. group; Ex. group 84.85±7.30 years old, Co. group 86.25±6.59 years old. Similarly, there were no significant differences between the two groups regarding the FIM and ROM. Except right shoulder flexion. When comparing the degree in the Ex. group before and after exercise therapy, the degree of ROM increased after therapy. Also, the degrees of right shoulder flexion, right knee extension, left dorsi flexion(p<0.01) and left shoulder flexion, right dorsi flexion(p<0.05) showed a significant difference. But there we could not recognized increasing in ROM in Co group (table 1)(t-test).

Comparing the results of two groups after the exercise therapy, better results can be observed in Ex. group than in Co. group.

[Discussion]

One of the characteristics of Takizawa Program is to exercise shoulder joint, knee joint, and foot joint by using accessible devices. The dorsi flexion angled by the device had a flexion movement range of about 25 degrees from 0 degree. And, knee extension and flexion by device had a movement range of about 115 degrees from a flexion angle 30 degrees.

The repetition of small range ROM exercise provides maintain the elasticity of supporting tissue. Also prevent the joint contracture.

And the program doesn’t need exercise hard. The important thing of this program is patients feel comfortable after exercise. Therefore they can continue the program.

These are considered one of the aspects to achieve the improvements of ROM.

<table>
<thead>
<tr>
<th></th>
<th>Ex.gr. before</th>
<th>Ex.gr. after</th>
<th>Co.gr. before</th>
<th>Co.gr. after</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shoulder flex.</td>
<td>113.3±36.975</td>
<td>120.5±33</td>
<td>106.5±37.99</td>
<td>112.5±33</td>
</tr>
<tr>
<td>Knee ext.</td>
<td>-23.4±21</td>
<td>-18.1±18.79</td>
<td>-20.3±24.21</td>
<td>-20.3±20.9</td>
</tr>
<tr>
<td>Dorsi flex.</td>
<td>2.4±14.395.3</td>
<td>5.4±15.58</td>
<td>0.4±16.143.4</td>
<td>4.0±14.56</td>
</tr>
<tr>
<td>Plantar flex.</td>
<td>35.2±11.535</td>
<td>37.1±10.8</td>
<td>37.9±10.534.2</td>
<td>35.6±16.1</td>
</tr>
</tbody>
</table>

* p<0.05    ** P<0.01