Re-acquirement of Walking from Bedridden by the Motivative Exercise and Takizawa Method and Proposition of the Solution to the Aging Crisis

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Abstract

We propose to downsize the occurrence of the disabled geriatric population from 16\% to 10\% or less in Japan and show how to realize it by showing past studies. The Takizawa rehabilitation method has been effective to reinforce the muscle force of the trunk and extremities for bedridden patients with a stroke, osteoarthrosis and other medical problems can be extended gradually by pacing without pain in the sitting position and by using the devices developed. One therapist can perform this process for many patients at the same time by the Takizawa method with the Motivative exercise. Both nurses and caregivers can rehabilitate them with appropriate guidance. We show the characteristics of the motivative exercise comparing to passive exercise and the possibility to substitute for passive exercise. The Takizawa method with the Motivative exercise contributed to the disabled elderly achieving care-independence. Therefore, we insist that the Takizawa method with the Motivative exercise enables budget cuts and will realize our proposition. The method contributes to the resolution for the aging crisis.

Keywords: biophilia rehabilitation, motivative exercise, Takizawa method, care-independence, ready-made rehabilitation

1. Background

The prediction of social security payments in 2025 had been over 3.7 trillion dollars in 1993 and was 2.07 trillion dollars in 2000 by keeping the present condition in Japan. This difference is based on the change in the economic growth estimate and the introduction of care insurance. Depending on the announcement of National Tax Administration and news, Japanese total amount of privately earned income is announced as 2.07 trillion dollars and decreasing, including the two previous years. The increase of the salary total amount is not expected much without the effect of inflation from now until 2025. The premise of that is that almost all privately earned income might be aimed to social security payments in 2025 in Japan. This situation causes us to fear similar problems that have occurred in developed countries but not only Japan in the case that there is no change in society by technological renovation. Although the budget prediction changed, the prediction number of the disabled elderly that occur remains 5,200,000 people (2,300,000 bedridden included) by 2025, this number of disabled has not changed since 1993. This situation demonstrates that it is not feasible to solve the problems in the prevention of the occurrences and the way of recovery of the disabled elderly depending on the diseases. The rehabilitation fee for medical treatment is intended to reduce after an acute disease period is passed from the viewpoint of social security payments increasing. We studied the rehabilitation method that is possible to enforce the reduction in costs since 1987\textsuperscript{1} 2\textsuperscript{3} 4. The occurrence of disabled elderly can be reduced by introducing the Motivative exercise with using the devices developed on the basis of the Takizawa rehabilitation method. We believe that this breaks not only the situation in Japan but is good for the people of all nations who have a longer life expectancy. We confirmed independent walking (one who uses any walking devices) that exceeds 30\% in the existing research results in the improvement of activities of daily living of the later years of the disabled elderly.\textsuperscript{5} 6\textsuperscript{7} 8. In other words, there is the possibility to downsize the occurrence of disabled geriatric population from 16\% to 10\% or less in Japan by making both the Motivative exercise and Takizawa method prevalent. It will contribute to the disabled elderly achieving care-independence and budget cutting not only in Japan but all over the world.
2. Purpose

We propose to downsize the occurrence of the disabled geriatric population from 16% to 10% or less in Japan by making the Takizawa rehabilitation method with the Motivative exercise prevalent. We inform the Takizawa method, which is effective to reinforce the muscle force of the trunk and extremities for bedridden patients with a stroke, osteoarthrosis and other medical problems can be extended gradually by pacing without pain in the sitting position and by using the devices developed. One therapist can perform this process for many patients at the same time as a ready-made rehabilitation. Both nurses and caregivers can rehabilitate them with appropriate guidance. We show the characteristic of the motivative exercise comparing to the passive exercise and the possibility to substitute partly for the passive exercise in order to realize it. It will contribute to the disabled elderly achieving care-independence and budget cuts that propose the solution for the aging crisis.

3. Methods

We try to show Figs and tables in order to improve that the characteristic of the Takizawa method and the motivative exercise can alternate partly for the passive exercise. The Takizawa method with the Motivative exercise to reinforce muscle force of the trunk and extremities for bedridden patients by stroke, osteoarthrosis and other medical problems can be extended gradually without pain in the sitting position by pacing oneself. One therapist could perform this process for many patients at the same time as Ready-made Rehabilitation as shown in FIG 1 continuing after a period of acute disease rehabilitation. However, one physical therapist rehabilitates one patient in the acute disease period as shown in FIG 3 and FIG 4. We examined the mobile ranges of both the passive exercise and motivative exercise by the three-dimensional analysis, using the Locus VDMa6250 as shown in table 19. Both passive and motivative knee flexion and extension exercises are shown in FIG 2 and FIG 3. And both passive and motivative ankle plantar flexion and dorsiflexion exercises are shown in FIGs 4 and 5. Also, we presented the application devices in accordance with the sickness period in the Takizawa method1 2 3 4. The reality of enforcement of the Takizawa method is reported even in the 1st ISPRM video session 10. We tried to have the medical rationale for us inspecting the motivative exercise as the new research by a national grant to evaluate the effect of the Takizawa method in the Geriatric health service Facility Shonannooka. We examined the medical records of the inpatients of the facility for the qualitative evaluation of the effect under the permission of the facility officials and inpatients.
4. Results:
Those Figs and table 1 show that the motivative exercise can substitute partly for the passive exercise. The physical therapist (73 years old) rehabilitated almost fifty disabled elderly in the facility with motivative exercise four days in every week. It showed that the possibility of the motivative exercise to substitute for the passive exercise.

We had the medical rationale for inspecting the motivative exercise as the new research by a national grant, that over 30% of bedridden patients in the geriatric facility have reacquired walking. The motor paralysis or slight dementia from cerebrovascular diseases was being merged by many of the 49 evaluation subjects that originate from these diseases. 35 disabled elderly were determined to have abasia by the physician and/or physical therapist. 28 persons had various types of bone diseases and 21 persons had various types of cerebrovascular diseases as the primary cause and 8 persons had both diseases. Regarding the evaluation of the qualitative analysis of the re-acquirement of walking by the Takizawa method with the motivative exercise was effective in re-acquirement of walking. 3 of the disabled elderly who had been evaluated as degree b (degree of the abasia of gait) on the Japanese degree of independent living for disabled elderly (JDILDE) at the facility admission had been rehabilitated by the Takizawa method with the motivative exercise. And they were discharged from the facility to their own home with a walking device or a cane. 5 of them in the facility have been able to go to the toilet by themselves (need help by a caregiver for toilet activities) with the use of any device. 21 people in 35 of them had been evaluated with Apraxia of gait and have at least re-acquired walking during training. We summarized a result in table 2.

Table 1. The movement range of the extremities by the three-dimensional analysis, using the Locus VDMa6250

| The plantar flexion angle | Fig 3. About to 37 degrees from 0 degrees. | About to 37 degrees from minus 12 degrees |
|--------------------------|------------------------------------------|------------------------------------------|
| A knee joint extension and flexion angle | Fig. 4 About to 118 degrees from 10 degrees | About to 140 degrees from 0 degrees |

5. Conclusions:
There are disabled elderly persons that previously had an apraxia of gait at the geriatric facility upon admission who re-acquired walking and were discharged to their home, however the persons were admitted to the facility again due to once again having a bone fracture. There are many cases that disabled elderly persons are admitted to the facility again, because of decreasing functions due to discontinuing rehabilitation from the absence of the physical therapist in charge after homecoming, even if they had become ADL independent due to consistent rehabilitation at the facility. We believe that the disabled
elderly can become living independently with small amounts of care from the caregiver by enabling the continuation of rehabilitation after their homecoming vice 24-hour care at an institution. The occurrence prediction number of the disabled elderly could be reduced through home rehabilitation. For that purpose, the rehabilitation that is carried out with the appropriate guidance by nurses or caregivers is expected, because it is impossible to rehabilitate disabled elderly by a specialist such as a physical therapist in the home and/or the area community daily. We will study in order that both nurses and caregivers can perform appropriate guidance for the home rehabilitation due to fusing both the Takizawa method with the motivative exercise for the home care.

We believe that this fusion named "Biophilia Rehabilitation" offered to human society can prevent the collapse of society (Aging Crisis) by the aging of the baby boomers due to making the disabled elderly who want to become independent become independent by the Biophilia Rehabilitation. Although the reduction of the quantity of care is effective, by consulting with a caregiver, in regard to disabled elderly who have rehabilitated in the facility, there was no significant improvement with four evaluations based on the Functional Independence Major. And also we are thinking that the motivative exercise may be effective to the reactivation of the nervous system so that it is a research subject for us now.

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