

The effect of a foot massage on walk function and dynamic balance in Parkinson's disease

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Abstract

We received a foot massage to patients with Parkinson's disease for six weeks. The walk function and effects on dynamic balance were examined. The center of gravity was stabilized, and improvement of the walk and the dynamic balance functions was found. However, the improvement was not clear in patients with advanced Parkinson's disease.

Keywords: Parkinson's disease, foot massage, walk function, dynamic balance

Introduction

Parkinson's disease patients present with muscle rigidity and motor disorder. Rising and walking are affected by freezing of gait and static reflex disorder. Rising and walking are important elements of bionomics. Because many sense receptors are present in a person's sole, stimulation of the sole is transmitted to the brain. Himeno describes this as follows [1]. "One-legged balance retention time lengthened the six-week foot care intervention. The tendency that became fast was seen in the walking speed." We gave foot massages to patients with Parkinson's disease. The effects on walk function and dynamic balance were tested.

Subjects and methods

The subjects who could stand, but had small-steppage and gait freezing included four patients with Parkinson's disease. There was no change of medicine or rehabilitation methods during the study period, which

lasted from September 29, 2014 to December 26, 2014. Using the up and go test (TUG), walking ability and the functional locomotiveness of the dynamic balance were evaluated. After having stood up from a chair, the patients made a round trip of 3m, and sat down on the chair again. The mean TUG of women in their 80s is 5.99-7.33 seconds. It is explained to the staff using a procedure so that shiatsu and enforcement time for massage are unified

Foot massage

The patients lie in or sit down on their beds. The nurse applies with ointment to her/his palm. The nurse paints from a toe to a knee. The nurse pushes the key points of the sole from the heel towards a finger-tip, three times. The nurse holds the patient's heel in the left hand, and turns the ankle to the right and left twice. The nurse massages the back of the foot in a spiral from the ankle towards a finger-tip three times. The sole is massaged in a spiral pattern three times. The nurse

massages a toe in a spiral pattern three times. The nurse massages the outside of the nail of toe three times. The nurse massages a knee in a spiral pattern three times. Finally the nurse conducts tapping lightly from the top to the bottom. It takes ten minutes for one leg.

The study duration was six weeks. The massage time was from 2:00 to 3:00 in the afternoon. An up and go test (TUG) was conducted after every massage treatment for one week. The postural analysis was conducted before the massage, three and six weeks after massage. The observation of the foot of the patients of the massage enforcement average is left for a nurse's record every day.

Ethical consideration

We explained to the patients that participation in the study was arbitrary and they could withdraw from the study at any time. Approval by the Ethical Review Board of the Tokushima National Hospital was received. The patient's names were encoded, and personal information was not identified. Also, the patients' information was not used apart for the purposes of the study. Data were erased after the study.

Results

We report on two patients. Patient 1 was a woman in her 80s. She was able to walk with a walker at ON-state. Patient 2 was also a woman in her 80s. She was able to walk using a walker. If in front enforcement as for A in results of testing up and go in 28.85 seconds time before the enforcement, the difference of the time of the first week is +19.96 seconds (Figure 1). In Patient 1, aggravation and improvement were repeated. In Patient 2, improvement was initially found but finally there was no change. The positional change of the center of gravity is shown in Figure 2. In Patient 1, the position of the center of gravity slipped off to the right during the experiment period. (Figure 2A). In Patient 2, the position of the center of gravity gradually recovered during the middle of the experiment period. (Figure 2B).

Discussion

Patient 1 described the following impressions after foot massage period of six weeks. She said "My foot felt warm and lighter". The nurse performing the massage noticed the relaxed expression of the patients. However, the walk was short and small-steppage, and walking was unstable during duration. Patient 2 said the following. "My foot felt fine, and it was easy to lift my foot while walking". The nurse performing the massage noted the following. The edema of the foot was reduced, and the feeling of coldness in the toe was improved.

The walking speed increased compared to before the massage treatment. Also, an OFF state did not appear in Patient 2. This suggests that massage induces mental relaxation.

Reference

1. Toshiko Himeno, Mitsu Ono. Effect of Foot Care for Health Promotion and Disease Prevention in Elderly Persons Living. J Jpn Soc. Nursing Res. 2010;33: 111-120.

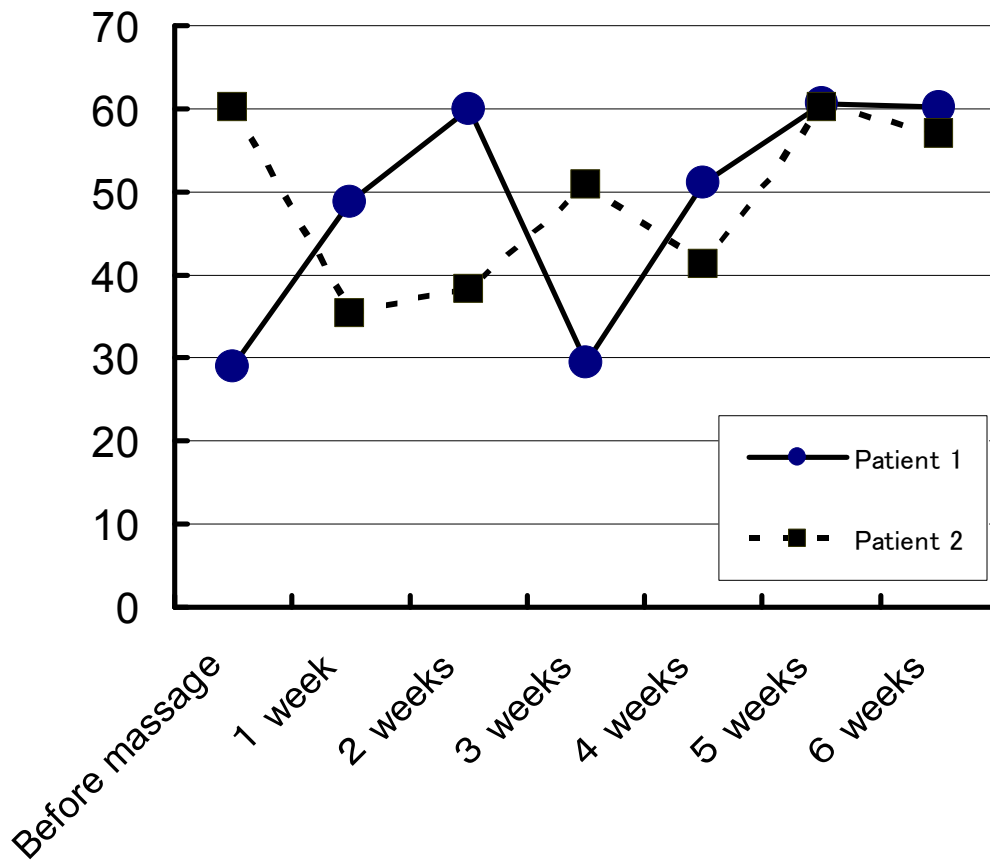


Figure 1. Results of up and go test (TUG) in Patients 1 and 2.

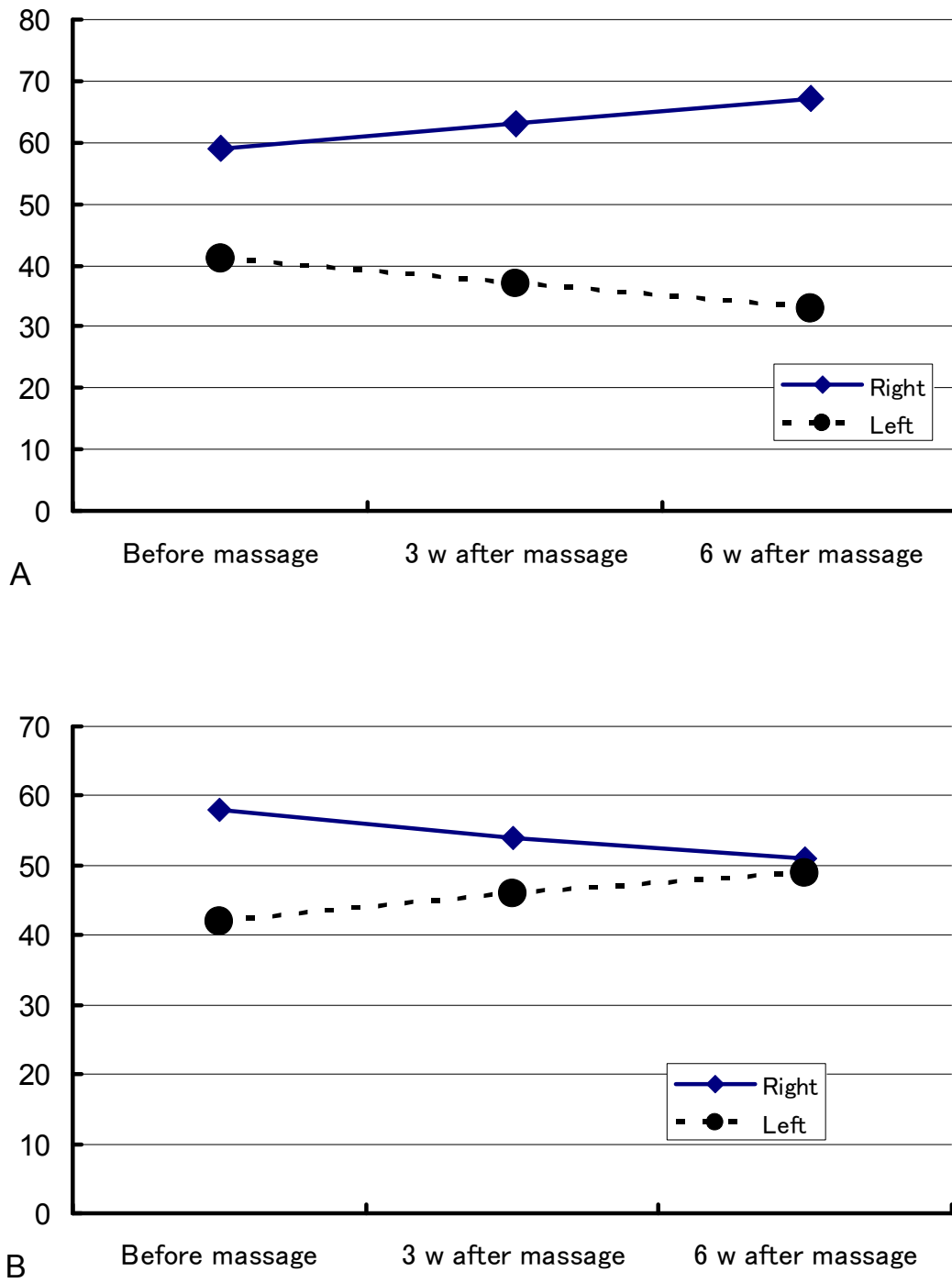


Figure 2. The positional change of the center of gravity in Patient 1(A) and Patient 2(B).