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Gait Endurance Index for Patients with Hemiplegia due to Cerebrovascular Accidents

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Abstract

The purpose of this study was to investigate the validity of the gait endurance index (GEI) for easily evaluating the physical fitness of hemiplegic patients. The subjects were 52 hemiplegic patients(39 men and 13 women, 55.1 ± 11.3 years old) and 11 healthy subjects (7 men and 4 women, 64.0 ± 6.1 years old) as a control group. All patients were able to walk indoors without aids or with a brace or cane or both. All subjects were tested using the GEI, which was defined as the gait distance for 5 min. / recovery heart rate. The recovery heart rate was defined as the total number of heart beats during the 1-1.5 min., 2-2.5 min. and 3-3.5 min. intervals just after gait. Oxygen uptake and heart rate were measured with portable equipment during gait in 13 hemiplegics who volunteered to participate and the 11 healthy subjects. The gait distance for 5 min., recovery heart rate and GEI were measured twice in 23 patients during a two week period. The gait distance of the patients was significantly shorter than that of the healthy subjects, but there was no significant difference in the recovery heart rate between the two groups. The GEI of the patients was significantly smaller than that of the healthy subjects. A significant correlation was found between the gait distance for 5 min. and oxygen uptake in the volunteer group, and between the recovery heart rate and the steady state heart rate during gait. No correlation between the recovery heart rate and the gait distance for 5 min. was found, in either the patients or the control group. These results indicate that the GEI is a valid and simple measure of physical fitness for hemiplegic patients after strokes.