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Effects of the programs for preventing dementia using Information and communication technology(ICT) tools

Rumi Tanemura[1], Toru Nagao[1], Kazue Noda[1], Soichiro Hirata[1], Kumiko Ono[1], Osamu Nakata[1], Atsuro Tsutsumi[2]
[1]Kobe University,Graduate Scool of Health Sciences, Kobe city, Japan, [2]Foundation for Biomedical Research and Innovation, Kobe city, Japan

Introduction：In Japan's highly aged society, the number of persons with dementia is estimated to reach 2,500,000 by 2015. The causes of dementia are pointed at pathological changes in the brain and disuse of physical and psychological functions. We developed a program for improving ambulation, depression and cognitive functions by using ICT tools.

Objectives：To evaluate the effectiveness of this program by measuring cognitive, mood and subjective health.

Methods: 113 female day-service center users agreed to join in our study. 57 received the new program and 56 were assigned to a control group. We evaluated them using MMSE, Clock Drawing Test, Frontal Assessment Battery (FAB), Geriatric Depression Scale and SF-36. Data were digitally recorded by using digital pens. Measurements will also be conducted at 6 months, but here we report the data which collected at 2 months. Contents of the programs are: １） Walking; target number of daily steps set per individual and monitored by pedometer ２） workbook exercises once per week (finger exercises, reading, painting and "spot the difference"). ３） "Mind Habits" 5 minutes weekly (computer exercise to reduce depression tendency developed at McGill University)

Results： The median of age of intervention subjects was 84.0 (78.50-87.00) year-old, and the median of age of the control subjects was 83.0 (78.00-87.00) year-old. The pre-intervention results of every evaluation didn't show significant differences between the two groups. The post-intervention results were compared to the results of control group, and a significant decline was observed in the control group in "movement" and "Go/No-go" in FAB, and there were no significant changes in the intervention group. The number of steps improved significantly in the intervention group.

Conclusion： The results of the number of steps and FAB scores in two groups suggest that this program for preventing dementia has an effect for maintaining the functions of higher motor areas and prefrontal areas.

Contribution to the practice: It was suggested that early detection and maintenance of cognitive functions could be possible by providing these programs for elderly people. Measurement at 2 months may be a too short period for evaluating the effects of this program. Therefore we will add analysis of measurement at 6 months.