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Comparison of The Effects of Computerized Cognitive Rehabilitation Programs, Bettercog and Comcog

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Background

A program for training memory and attention of cognitive domains in cognitive impaired patients was developed and distributed. However, a computerized cognitive rehabilitation program containing various cognitive domains has not yet been developed.

Purpose

The clinical efficacy of the Comcog and Bettercog, newly developed computerized cognitive rehabilitation program, is examined in patients with mild cognitive impairment or dementia.

Methods

We developed a computerized cognitive rehabilitation program(Bettercog) that can train not only memory and attention, but also abilities such as orientation, calculation, linguistic ability, comprehension ability, spatio-temporal ability, executive function, and responsiveness. In order to enhance the subject's interest, we applied real pictures and animations appropriately and applied game elements. To confirm the effectiveness of the newly developed computerized cognitive rehabilitation program, randomized single blind comparison pilot study was performed on elderly with mild cognitive impairment and mild dementia. A total of 20 cognitive decline patients were divided into Comcog group and Bettercog group by random assignment. All subjects received 12 sessions of computerized cognitive rehabilitation programs for a total of three weeks. In a separate space, an independent clinical psychologist performed the Seoul Neuropsychological Screening Battery(SNSB) before and after treatment.

Results

8 men, 12 women, total 20 subjects participated. The average age of the subjects was 74.3 years. There were no significant difference between two groups in baseline age, years of education, MMSE, CDR and SNSB score. In the posttreatment cognitive assessment, patients treated with Bettercog improved their MMSE scores from 19.2 to 21.3, which was statistically significant.($p=0.007$) In the memory domain of SNSB, the raw score improved statistically from -1.5 to -1.2.($p=0.007$) However, there was no statistically significant difference in the final MMSE, CDR, and SNSB scores between the two treatment groups.

Conclusion

Through this preliminary study, we confirmed that the newly developed computerized cognitive rehabilitation program(Bettercog) is effective in improving cognitive function.

Twelve cognitive rehabilitation sessions do not have enough time to apply various cognitive rehabilitation contents to patients. It is necessary to conduct a large scale study using computerized cognitive rehabilitation program which has various cognitive contents.

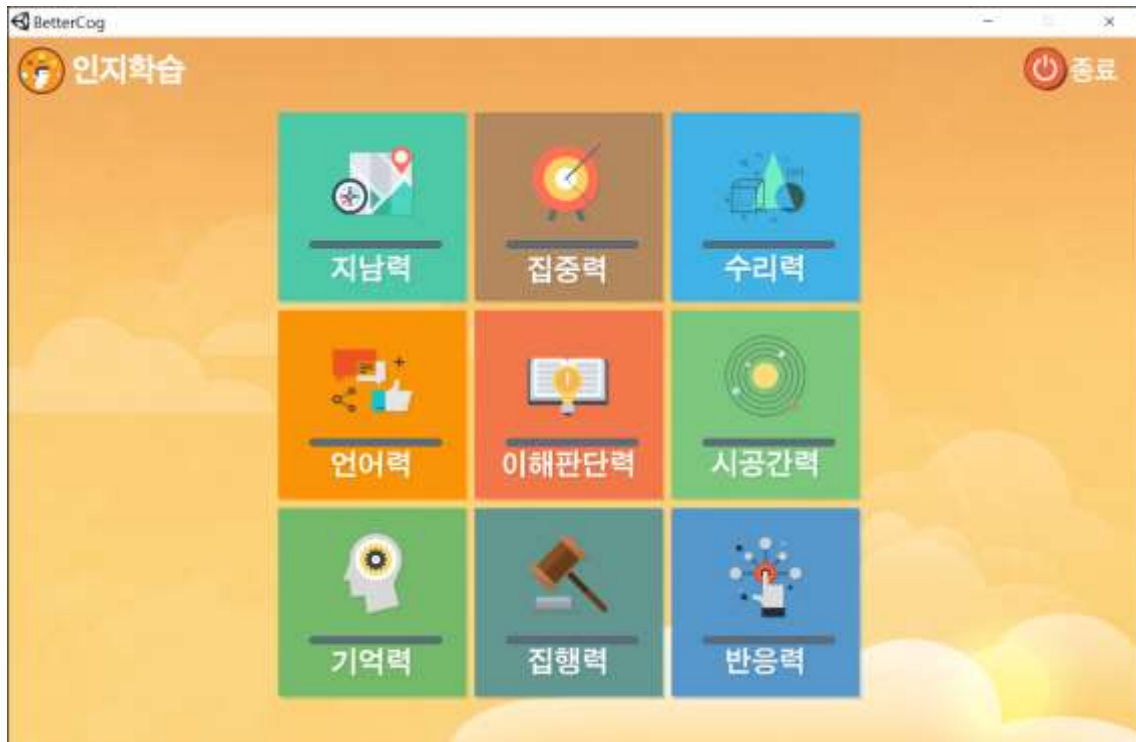


Fig 1. Cognitive training content presented on the Bettercog initial screen