Review Article

Summarization of CKPT(Japanese Version of CWPT) and Latest Information

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Abstract

Purpose: The ultimate goal is to prevent the onset of dementia, and the primary goal is to establish a means for detecting slight declines in brain function before the onset of MCI. Using this method, it is possible to advance research on what kind of brain rehabilitation should be used or on evaluation of newly developed medicine.

History: Around 2006, when we focused on dementia prevention, the focus of research around the world was on drugs for dementia and mental rehabilitation for people with dementia. Therefore, the neuropsychological test (CWPT) that we invented has not received any attention at home or abroad, and we have not been able to obtain any grants. CWPT's academic debut began when I was invited to give a lecture at the 24th International Conference on Neuroscience and Neurochemistry in 2018. Since then, I have received many invitations to give lectures at academic conferences both in Japan and overseas, as well as many requests to write articles for journals.

Feature: 1) The sensitivity and specificity of CWPT screening for MCI stage individuals with MMSE scores of 27 or higher are 0.963 and 1.000, respectively. (2) It is a neuropsychological test that can be conducted in groups. (3) It can be used by translating it into the languages of various countries. (4) Applications include annual health check of the brains, brain rehabilitation, and evaluation of the effects of preventive medicines of healthy individuals

Summery: Today, when research on dementia has shifted to before the onset of dementia, CWPT is gaining importance as a test that can economically measure minor changes in the brain of healthy subjects. A newly developed dementia drug (LEQEMBI™) will give CKPT a new role in screening subjects.

KEY WORDS: Dementia prevention, Neuropsychological test, CWPT(Colour Words Pick-out Test)

Purpose

The ultimate goal is to prevent the onset of dementia, and the primary goal is to establish a means for detecting slight declines in brain function. For research on dementia prevention, this neuropsychological test can be used to determine the effects of dementia prevention drugs, brain rehabilitation, and lifestyle improvement.

History

Around 2006, when we focused on dementia prevention, the focus of research around the world was on drugs for dementia and mental rehabilitation for people with dementia. Therefore, the neuropsychological test (CWPT: Colour Words Pick-out Test) [1], that we invented has not received any attention at home or abroad, and we have not been able to obtain any grants. CWPT's academic debut began when I was invited to give a lecture at the 24th International Conference on Neuroscience and Neurochemistry in 2018. The second presentation is done at Global Conferences on Oral Health & Mental Disorders in 2019.Since then, I have received many invitations to give lectures at academic conferences both in Japan and overseas, as well as many requests to write articles for journals.

Feature

The sensitivity and specificity of CWPT

First paper introduces Evidence on CKPT (Colour Kanji Pick-out Test) which is a Japanese version of CWPT [2]. The paper introduces what kind of test the CWPT is, and describes the results of prefrontal cortex activation, Criterion-related Validity, and Sensitivity and Specificity. Among them, it is noted that when the cut-off score between MCI and healthy sets on 27-28 of MMSE and the CKPT cut-off score is -1.5 SD, the sensitivity and specificity are 0.963 and 1.000, respectively.

A neuropsychological test that can be conducted in groups

In Criterion-related Validity of the first paper, it is suggested that CKPT correlates with correct numbers of WCST (Wisconsin Cards Sorting Test) and error numbers of WCST. The CWPT is suitable for screening because it can be administered in groups, whereas the WCST is an individualized test.

Translating CKPT into the languages of various countries

In CWPT, a story including colour words are shown first like Figure1 upside. Subjects should read the story memorizing the episode of it and

pick-out colour words discerning the matching of meaning and printed colour, simultaneously. If the meaning and the printed colour of the word are matched, give circle on the word. If unmatched , give cross After that, subjects are required to answer the questions without seeing the story. Please recognize CWPT is easily translated into the languages of various countries. English Version of CWPT [3], is already prepared and we are waiting a collaborator who has an interest to use it.

Figure 1. CWPT Upside: Story Downside: Questions

Applications of CWPT

The CKPT score is called Index1 and is the product of the number of correctly marked Circle or Cross in the story and the percentage of correct answers to the questions. The score obtained by the subject is classified into 5 grades based on the diagnostic criteria [4]. Using the score or grade, applications include annual health check of the brains [5], and the evaluation of the of preventive medicines and preventive brain rehabilitation.

Here I would like to introduce an interesting result using CKPT [6]. Using the diagnostic flowchart on Fig.2 and relative Exclusion conditions on Table1, Index1 judgment on Table2, Diagnostic Criteria on Fig.3, we conducted a fact-finding survey of elderly people aged 60 and over who thought that they did not have dementia. It was showed that the proportion of people who needs clinical treatment increased as the age progressed from the 60s to the 70s to the 80s.
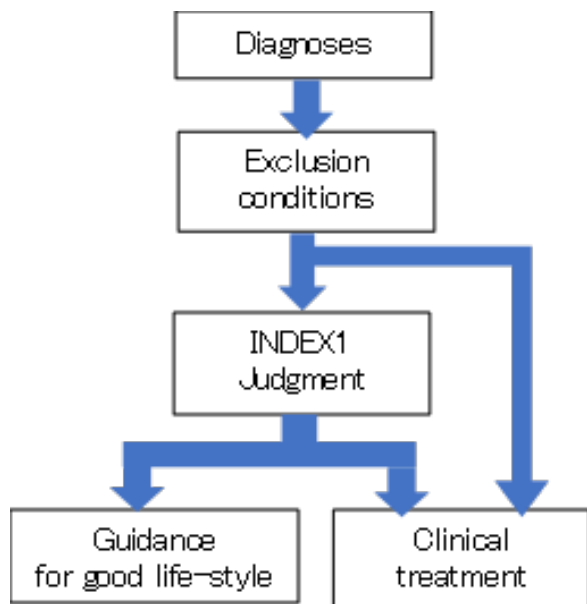

Figure 2. Diagnose flowchart

Table 1: Exclusion conditions

No.	Items	Conditions
1		Wrong answ. ≥2
2		Oversight ≥4
3	Story scoring	Mistaken answ. ≥1
4		Wrong answ. =1 and Oversight ≥2
5	Questions≥	No correct answer

Table 2: Index1 judgment

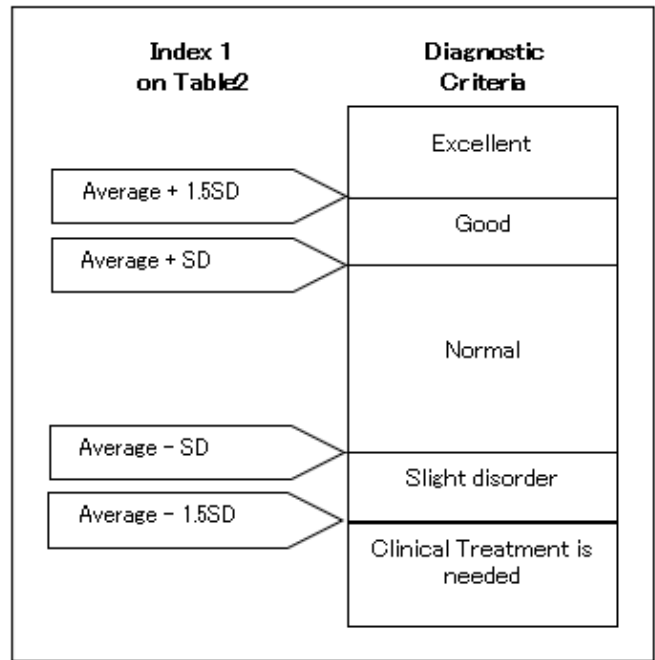| Male/Female		Average -1.5SD	Average	Average +1.5SD
Mele	Sixties	5.1	11.7	18.3
	Seventies	5.0	10.7	16.2
	Eighties	3.0	8.6	14.2
Female	Sixties	5.9	11.9	17.9
	Seventies	4.6	10.6	16.5
	Eighties	2.3	8.8	15.3

Figure 3. Diagnostic Criteria

Summery

In recent years, research on dementia has shifted to MCI and the Preclinical Stage after it was concluded that it would be difficult to develop therapeutic drugs after dementia. There is a need for non-invasive and economical testing methods to determine the efficacy of drug and non-drug therapy, and CKPT is meeting that need. A newly developed dementia drug (LEQEMBI™) will give CKPT a new role in screening subjects.

Acknowledgments

Conflicts of Interest

There is nothing to declare about the contents of this presentation because neither subsidy nor grant was used.

References

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