Usefulness of fist-edge-palm test in dementia clinic

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Introduction: The fist-edge-palm task (FEP) was believed this impairment to be closely related to contralateral frontal lobe damage. However, previous studies have shown that more extensive areas are activated during the task. In this study we aimed to evaluate whether FEP is able to differentiate mild cognitive impairment (MCI) or Alzheimer's disease (AD) from normal controls.

Methods: 25 AD, 25 MCI, 25 normal controls were enrolled. In the FEP, the subjects were requested to place their hand in three different positions sequentially: a fist resting horizontally, a palm resting vertically, and a palm resting horizontally. Before the subjects performed the task, one doctor showed three times of FEP, then instructed the subjects to repeat the movement 6 times and videotaped their performance. If the subjects did the task correctly more than 3 times, they were scored 3. However, if they did the task correctly once or twice, they were scored 2. Unless they did ever, they were asked to follow the movement step by step shown by one doctor. If they were able to do correctly, they were scored 1. We compared the score and speed of their performance among patients or controls. In addition, we analyzed common error patterns among patients.

Results: The mean age of the patients was 79.36 in AD, 75.60 in MCI, and 67.33 in normal controls. The proportion of man was 27.27% in AD, 30.43% in MCI, and 33.33% in normal controls. The mean education years were 5.19 in AD, 8.57 in MCI, and 6.17 in normal controls. The distribution of scores in each group was as follows: 3/2/1/0: 4(16%)/0(0%)/0(0%)/21(84%) in AD, 7(28%)/4(16%)/8(32%)/6(24%) in MCI, 25(100%)/0(0%)/0(0%)/0(0%) in normal controls. A total of 35 patients were scored 3. The mean duration of their performance was 19s in AD, 17 s in MCI, 10 s in normal controls. The most common errors was omission of task, especially “edge” in AD whereas sequential error and addition of wrong motion were commonly observed in MCI.

Conclusion: MCI patients showed slower performance and more common errors than normal. Most of AD patients were not able to do FEP. The study suggests that FEP can be used in bed-side screening tool in the dementia clinic.

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