Cambridge Neuropsychological Test Automated Battery (CANTAB)

Description

The CANTAB has been used to assess neurocognitive performance in modeling studies of CFS (Robbins & Sahakian, 1994; Capuron et al, 2001). The CANTAB has modules for several neurocognitive functions and processes including psychomotor and motor speed, reasoning and planning abilities, memory and attention, and frontal, temporal and hippocampal dysfunctions. Thus, it allows assessment of neuro-cognitive dysfunctions associated with neurologic disorders, phannacologic manipulations, and neuro-cognitive syndromes. The mean time for the battery we will administer is 40-45 minutes. The tests are independent of language and non-sensitive to gender. Parallel versions of these tests can be used for subsequent evaluations.

The CANTAB includes the following modules:

a) Psychomotor Coordination and Motor Speed: The Reaction Time Test measures subject's speed ofresponse to a visual target where the stimulus is either predictable (simple reaction time) or unpredictable (choice reaction time). This test requires approximately 5 minutes.
b) Reasoning and Planning Abilities: The Stockings of Cambridge task assesses subject's ability to engage in spatial problem solving. It makes substantial demands on executive function and is sensitive to frontal -lobe deficits. It requires 7-10 minutes.
c) Memory: There are three modules: (a) The Spatial Working Memory module requires that subjects find a blue token in a series of displayed boxes and use these to fill up an empty column, while not returning to boxes where a blue token has been previously found. Some studies have shown this to be impaired in CFS patients (Joyce et al 1996). It requires 5-10 minutes. (b) The Pattern Recognition Memory test screens visual recognition memory in a 2-choice forced discrimination paradigm and is sensitive to temporal or hippocampal dysfunctions. It requires about 3 minutes. (c) The Spatial Recognition Memory test is a 2-choice forced discrimination paradigm that requires about 2-3 minutes.
d) Attention: There are two modules: The Auemioflal Shift; Intra/Extra Dimensional Shift task is a test of rule acquisition and reversal, featuring visual discrimination and attentional set shifting. It is sensitive to cognitive dysfunction in Parkinson disease and frontal -lobe deficits and requires approximately 5 minutes. The Sustained Attention: Rapid Visual Information Processing module is a visual continuous performance task (vigilance) with a small working memory component. It is impaired in patients with frontal lobe pathology. Its duration is 4 minutes.

Study Sample

222 participants in the study completed CANTAB.

Data Collection Methods

All tests of the CANTAB are computerized, presented on a touch screen and, thus, testing is standardized and data is instantly recorded.

References

Capuron L, Ravaud A, Dantzer R. Precocity and specificity of the cognitive changes induced by interleukins-2 and interferon-alpha treatments I cancer patients. *Psychosom Med* 2001; 63:376-386

Robbins TW, Sahakian BJ. Computer methods of assessment of cognitive function. In *Principles and Practice of Geriatric Psychiatry*, Copeland JRM, Abou-Saleh MT, Blazers DG (eds), John Wiley & Sons Ltd., Chichester, 1994, pp 205-209.