Driving simulation for neurological evaluation: an assessment tool in occupational therapy

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Abstract

In health care, the question is raised whether discharged stroke patients are capable of driving a car safely. There are many difficulties in reliably assessing this ability of such a patient. In an effort to reliably determine a patient's ability to drive safely an assessment tool in the form of a driving simulator has been created for use within the medical field: the Clarus Argus driving simulator. There are other driving simulators used in research concerning fitness to drive, but there is at present no advanced simulator designed especially for the assessment of driving ability and training of patients in the health care sector.

A study of 30 patients with impairments after their first stroke is currently being prepared. The study involves three stages of evaluation and assessment. In the first stage, the patients will be submitted to a battery of neuropsychological tests relevant to driving. In the next stage, the patients will drive in the simulator. In the third stage, the patients will drive a car in real traffic together with a driving examiner. So far only preliminary results are available.

Introduction

In the health care sector the question as to whether discharged patients are capable of driving a car in a safe manner is raised. Psychometric tests have been proven insufficient in predicting driving performance after stroke; therefore, neuropsychological tests are recommended to be completed in conjunction with driving in real traffic. Unfortunately, the most often used assessment tools in occupational therapy today are seldom relevant to the patients. For instance, a household assessment can provide the occupational therapist with enough information while it is unclear to the patient how this is related to driving skills. In hospitals, neurological disease or injury is a frequent diagnosis, and stroke patients are common. Clinical experience shows that many of these patients continue to drive despite impaired abilities that make driving difficult and often dangerous. Driving is an important skill in life, and patients with these disorders may be unfairly discriminated against due to stereotyping.

A driving simulator can in principle directly and safely provide specific information about the patient's driving abilities. It is also useful for evaluation and training in defensive driving skills and hazard perception (Quigley and DeLisa, 1983). Several studies describe the difficulties in reliably assessing the ability to