Demenzdiagnostik mit Hilfe der Vienna Neuropsychologischen Testbatterie (VNTB): Standardisierung, Normierung und Validierung

The Vienna Neuropsychological Test Battery (VNTB) for detecting Alzheimer's Dementia: standardization, norms, and validation

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Zusammenfassung

Die frühzeitige Erkennung der Alzheimerkrankheit wird aufgrund von neuen pharmakologischen Therapieoptionen immer wichtiger. Ziel der vorliegenden Studie war die Standardisierung und Normierung der Vienna Neuropsychologischen Testbatterie (VNTB). Zusätzlich sollte die diagnostische Wertigkeit der eingesetzten neuropsychologischen Testverfahren für die Diagnose der Alzheimerkrankheit überprüft werden. In die Studie eingeschlossen wurden Patienten, die in der Gedächtnisambulanz der Neurologischen Universitätsklinik mit Gedächtnisstörungen vorstellig wurden. 136 Patienten wurden klinisch untersucht und unterzogen sich einer ausführlichen neuropsychologischen Untersuchung. 78 Patienten erhielten die Diagnose Alzheimer Demenz und 58 Patienten wurden als kognitiv nicht beeinträchtig eingestuft. Sensitivität, Spezifität, positiv prädiktiver Wert und negativ prädiktiver Wert wurde für alle Variablen erhoben. Die neuropsychologischen Variablen der VNTB konnten statistisch signifikant zwischen der kognitiv nicht beeinträchtigen Gruppe und der Alzheimergruppe differenzieren. Die vorliegende Studie liefert Hinweise für die Brauchbarkeit der VNTB für die Diagnose der Alzheimerkrankheit.

Abstract

Early detection of dementia is becoming more and more important due to the advent of pharmacologic treatment. The goals of this study were to report standardization procedures and norms for the Vienna Neuropsychologische Testbatterie (VNTB) and further to evaluate the diagnostic utility of the used psychometric measures. Patients complaining about memory problems and who came to the memory outpatient clinic for assessment of their memory disorder were included in the study. One hundred thirty-six patients underwent a clinical examination and completed a battery of standard cognitive tests at study entry. Seventy-eight received the diagnosis of Alzheimer's disease and fifty-eight were categorized as cognitively unimpaired controls. Sensitivity, specificity, receiver operating characteristics (area under curve, AUC), positive predictive value and negative predictive value for each neuropsychological test were determined. All neuropsychological variables significantly separated dementia patients and controls on a group basis. Receiver operating characteristics based on the measure of AUC of the specific neuropsychological tests ranged from 0.78 to 0.99. Our study contributes knowledge regarding the diagnostic value of the VNTB in patients with memory impairment attending a memory clinic.

1. Introduction

In recent years the advent of pharmacological treatment for Alzheimer`s Disease (AD) has spurred the interest of diagnosing dementia as early as possible in order to provide early treatment. Published criteria for AD diagnosis such as those developed by the Work Group of the National Institute of Neurological and Communication Disorders and the Stroke/Alzheimer's Disease and Related Disorders Association (NINCDS/ADRDA) (McKhann et al., 1984) require standard assessment of patients.

The neuropsychological diagnosis is based on impairments in relevant cognitive domains such as psycho-motor skills, attention, language, memory and executive functions. These domains can be assessed by commonly used cognitive measures. It is likely that more than one measure may be required to tap complex constructs such as psycho motor skills (eye-hand coordination), attention (selective attention, divided attention), language (confrontation naming, verbal fluency), memory (learning and immediate and delayed recall of verbal material) and executive function (planning, concept formation, shifting cognitive sets).

One problem in the field of early dementia detection is the reliable discrimination of normal aging from mild dementia particularly in high functioning individuals and people with life-long poor cognitive functioning. Several screening measures such as the MMSE (Folstein et al., 1975), clock drawing test (Powlishta et al., 2002) and seven minute screen (Meulen et al., 2004) as well as neuropsychological test batteries such as the CERAD neuropsychological test battery (Chandler et al., 2005) and the neuropsychological test battery for the Alzheimer's Disease Cooperative Study (Grundman et al., 2004) are available.

Because no commonly accepted specific test battery is recommended, a recent review of early detection of dementia with recommendations for future research recently published advocated additional research to develop appro-