Original Study

Risk Factors of Cognitive Impairment and Brief Cognitive Tests to Predict Cognitive Performance Determined by a Formal Neuropsychological Evaluation of Primary Health Care Patients

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ABSTRACT

Background: Case finding for cognitive impairment (CI) is recommended for all persons older than 70 years.

Objective: The present study identified additional risk factors of CI so as to operationalize a composite total risk score (TRS) for case finding. We then examined the additive effect of the TRS and brief cognitive tests to improve the diagnosis of CI.

Methods: The study was conducted in 2 primary health care centers in Singapore. A total of 1082 individuals (≥60 years old) were assessed for sociodemographic risk factors and their informants were administered the AD8; 309 individuals who agreed for further cognitive assessments completed the Mini-mental state examination (MMSE) and Montreal Cognitive Assessment (MoCA), and a neuropsychological battery at a research center. Primary health care medical records were accessed for data on vascular risk factors.

Results: Of the 309 individuals who underwent neuropsychological evaluation, 4 were excluded due to missing medical data; 167 (54.8%) individuals had CI and 138 (45.2%) had No Cognitive Impairment (NCI). The β coefficients were standardized to calculate risk scores. CI was significantly predicted by age >70 years (odds ratio [OR] 5.99; score = 3), diabetes (OR 3.36; score = 2), stroke (OR 2.70; score = 1), female gender (OR 2.02; score = 1) and individual cognitive complaints (SCC) (OR 1.95; score = 1). The TRS had an optimal cutoff of ≥3 and explained considerable variance in global cognitive composite Z-scores ($R^2$ = 0.41, $P < .001$). The MoCA explained substantial variance compared with the MMSE and AD8 ($R^2$ changes of 0.474, 0.422, and 0.157, $P < .001$, respectively).

Conclusion: The TRS is a reasonable measure to predict individuals at risk of CI. The addition of the MoCA, in persons with positive TRS scores, is a useful approach to improve the diagnosis of CI for at-risk patients attending primary health care.

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Dementia is a growing public health concern with a current prevalence of 47.5 million, which is expected to double to 75.6 million by 2030 and more than triple by 2050. Early recognition of cognitive impairment (CI) and dementia allows for timely interventions and better prognosis for patients and their family members. However, there is a lack of an effective approach to identify cognitively impaired individuals for interventions, which is in part due to the lack of evidence for routine cognitive screening. By comparison, case finding or “opportunistic screening” for CI is likely a more effective approach...