LETTER TO THE EDITOR

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Montreal Cognitive Assessment (MoCA) and its memory tasks for detecting mild cognitive impairment

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Dear Editor,

I have read the article entitled as "The role of the Montreal Cognitive Assessment (MoCA) and its memory tasks for detecting mild cognitive impairment" by Li et al. with interest [1]. The authors investigated the role of the Montreal Cognitive Assessment (MoCA) and its memory tasks in combination with the Mini Mental State Examination (MMSE) for detecting different mild cognitive impairment (MCI). Amnestic MCI (aMCI) and non-amnestic MCI (naMCI) were selected as subtypes of MCI. The area under the curve (AUC) values of the MoCA for differentiating the aMCI-multiple domains ($n = 56$) and naMCI patients ($n = 33$) from controls ($n = 53$) were 0.884 and 0.687, respectively. In addition, AUC value of the MoCA memory items for differentiating the aMCI-single domain ($n = 32$) from controls was also significant, and the authors concluded that MoCA was a good screening tool for detecting two subtypes of MCI. I have some concerns with this study.

First, the authors checked a significance of each AUC value. But there is also a need of comparing the difference between each AUC value, when superiority of MoCA against MMSE or other traditional indicators is intended to be evaluated. In this comparison, the increased number of samples leads to stable estimate [2].

Second, Tsoi et al. conducted a meta-analysis on the validity of different cognitive tests used for MCI detection, by setting the standard diagnostic criteria [3]. Among 108 studies, 35 studies of MoCA were evaluated. The combined diagnostic performance of the MoCA for MCI detection was 0.83 sensitivity (95% CI, 0.80–0.86) and 0.75 specificity (95% CI, 0.69–0.80). They also recommended the MoCA for detecting patients with cognitive impairments beyond memory deterioration. Shi et al. also conducted a meta-analysis to evaluate

screening ability of MoCA for post-stroke cognitive impairment (PSCI) [4]. Compared to MMSE, the MoCA has higher sensitivity but lower specificity. Both the MMSE and MoCA were appropriate screening tools for PSCI, and they recommended the use of these two tools in accordance with the aim of screening. I appreciate that Li et al. evaluated MoCA for differentiating subtypes of MCI, and much more studies on subtypes of MCI are needed to conduct a meta-analysis.

Finally, there is a need of paying attention to sex and age for the validation study on MCI. To specify these effects, stratified analysis by sex and age would be simple and effective. Alternatively, multivariate logistic regression analysis can be adopted by using sex and age as adjusting variables [5]. Anyway, enough number of samples is required for these analyses.

Compliance with ethical standards

Conflict of interest The author declares that he has no conflict of interest.

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