Journal of the Medical Association of Thailand, Vol 96, No 2

Estimated Creatinine Clearance and Cognitive Impairment in Thai Older Adults: A Pilot Study from the Dementia and Disability Project in Thailand

Prachaya Srivanitchapoom, Vorapun Senanarong

Abstract

Background: Chronic kidney disease and dementia are the two common conditions in the older adults. The recent study from the US older adult populations has shown that the lower levels of kidney function are associated with increased prevalence of cognitive impairment.
Objective: Exploring the relationship between levels of kidney function and cognitive function in Thai community base older adults and finding the threshold of kidney function for which general practitioner should screen for cognitive impairment.
Material and Method: Bangkok community dwelling older adults were recruited during 2004-2006. Serum creatinine and cognitive function were measured. Kidney function was represented in estimated creatinine clearance (eCrCl), calculated by Cockcroft-Gault formula. Cognitive function assessment was evaluated by Mini Mental State Exam Thai version (TMSE). The participants were divided into 4 groups, Model 1, those stratified by level of eCrCl; > 90, 60-89, 30-59 and < 30 mL/min respectively. Unfortunately, after the authors categorized eCrCl as a Model 1, the number of participants are largely unequally distributed among the 4 groups. Therefore, the authors developed Model 2. In Model 2, eCrCl was divided, by tertile, into 3 groups; eCrCl > 65, 48-65 and < 48 mL/min respectively. Participants with TMSE < 24 were considered to have cognitive impairment. The association between kidney function and cognitive impairment was determined by univariable and multivariable logistic regression models.
Results: 317 participants were enrolled, 65.71% (n = 207) were women. The mean age was 71.13 years (SD = 7.99). In Model 1, the authors found a trend which indicated that eCrCl < 30 mL/min increased the prevalence of cognitive impairment when compared with eCrCl > 90 mL/min (adjusted odds ratio 3.82; 95% CI 0.90-16.19, p-value = 0.07). In Model 2, the authors also found that populations of eCrCl < 48 mL/min had a trend to increase the prevalence of cognitive impairment when compared with eCrCl > 65 mL/min (adjusted odds ratio 1.76; 95% CI 0.99-3.12, p-value = 0.052).
Conclusion: In the present study, the authors could not demonstrate any statistical significant of an association between the lower eCrCl and cognitive impairment. However, the authors found that eCrCl < 48 mL/min may have a trend to associate with cognitive impairment. Therefore, the authors may use this eCrCl level for screening prevalence of cognitive impairment in the older adult population.

Keywords: Creatinine clearance (CrCl), Chronic kidney disease (CKD), Cockcroft-Gault formula, Cognitive impairment and Mini Mental State Exam Thai version (TMSE)

Full Text: PDF

The Medical Association of Thailand
Address: 4th Floor, Royal Golden Jubilee Building, 2 Soi Soonvijai, New Petchburi Road, Bangkok 10310, Thailand
Telephone: 0-2716-6102, 0-2716-6962 press 0 Fax: 0-2314-6305
E-mail: jmedassocthai@yahoo.com, math@loxinfo.co.th