Oral Communication

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Kerala Brain Injury Questionnaire: Developing a Culture Sensitive TBI Prevalence Tool for Developing Nations

Topic: Research

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BACKGROUND

Mild traumatic brain injury (mTBI) can result in persistent neurological symptoms and signs that may contribute to late life cognitive decline. Systematic assessment tools of lifetime post-mTBI symptoms in older populations, especially in low-middle income countries like India, is lacking.

METHODS

We conducted a secondary retrospective analysis of older adults participating in the Kerala Einstein Study (KES) based in Kerala, India. KES aimed to identify risk factors for Motoric Cognitive Risk syndrome (MCR), a predementia syndrome. We examined the feasibility, reliability and validity of the Kerala Brain Injury Questionnaire (KBIQ), which assessed clinical symptoms possibly related to mTBI over the previous month. Inclusion criteria was age > 60, ability to consent. Exclusion was mod-severe TBI, dementia, vision, hearing loss, terminal illness. The research team (physiatry, neurology and psychiatry) developed a bilingual TBI screening which included 17 items. In addition, they underwent mental status assessment with Addenbrooke Cognitive Examination III- Malayalam version, 30-item geriatric depression scale (GDS), 21-item Generalized Anxiety Disorder-7 scale (GAD-7). A comorbid index (range 0-10) was obtained from dichotomous ratings (presence/absence) of physician diagnosed of 10 common medical conditions.

RESULTS

Six hundred eighty two community-dwelling older adults (mean age 68.5 ± 5.7 years, 40.5% women, and 14.9% reported mTBI) without dementia participating in the Kerala Einstein Study (KES), completed the KBIQ. The KBIQ had high acceptability (100%) and response rates with no concerns raised during administration raised by participants or interviewers. The KBIQ demonstrated high internal consistency (Cronbach alpha 0.86, 95% CI 0.85 to 0.88, $p < 0.001$). Test-retest reliability of the KBIQ score in 21 participants who were readministered the questionnaire after one year was 0.78 (95% CI 0.52-0.91, $p < 0.001$) as assessed by comparison to history of mTBI. We used Principal Component Analysis to determine that the KBIQ has a six-component structure which accounted for 71% of the variance (sensory disturbances (vision, smell and taste), sensitivity (to light,noise, confusion), concentration (difficulty focusing and multitasking), loss of self-control and memory (acting impulsively, memory loss, irritable, and anger), mood disturbances (anxiety and depression) and somatic symptoms (hearing and sleep disturbances, headache and fatigue).

CONCLUSION

Current post-concussive questionnaires to detect lifetime mTBI were developed in young and middle-aged Western populations. Developing countries have higher burden of global TBI. Older patients are often not included because of poor rural services. The KBIQ is a reliable and valid assessment of chronic post-concussive symptoms in older Indian adults.

Statement of Disclosures

None

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