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Evaluation of risk of fall on frail elderly: The reliability and validity study of an obstacle course, the Sherbrooke Functional Evaluation of the Risk of falls in Elderly (SFERE)

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Background: It is increasingly accepted that the success of fall prevention on frail people with osteoporosis and post-fracture screening and treatment programs is mediated by applicant the program to the right person. In fact, because the older people do not necessarily want to get this kind of program, it is crucial to offer this intervention to people, which are more susceptible to fall. It is important because the third of those falls could potentially be prevented. An obstacle course is a good way to assess the risk of fall because it considers the double tasking and is representative of daily living of elderly. This is why this study focussed on Sherbrooke Functional Evaluation of the Risk of Falls in Elderly (SFERE).

Objective: The purpose of this research was to establish the reliability and the validity of the SFERE to identify fallers.

Participants: 41 participants were evaluated for the reliability and 95 participants for the validity (mean age 84 years old). The inclusion criteria were: Able to walk with or without aid, able to follow simple instruction, medically stable and 55 years or older. The exclusion criterion was important comorbidity preventing from accomplishing the obstacle course.

Method: Each participant was assessed the obstacle course, the TUG test, the manual TUG test, the sit to stand test and were asked to fill a social demographic questionnaire. For the reliability, participants were evaluated by two evaluators on the first session evaluation and by one of the two evaluators sat the next visit. The content validity was established by a consensus between expert clinicians. The criterion concurrent validity was established by comparing the SFERE results with their status of faller or non-faller with a ROC curve. The construct convergence validity was established by comparing the SFERE's results with the TUG tests.

Results: The SFERE was found to have excellent inter-rater reliability (ICC=0.90) and good intra-raterreliability (ICC=0.73). The results show a good correlation between the SFERE and the TUG (r=0.731 with the score; r=0.846 with the time). The cut-off score for identifying fallers of 89.2s has values of sensitivity (0.911) and specificity (0.800) that are even better than those of the score, cut-off score ≤27 (sensitivity of 0.911; specificity of 0.620).

Conclusion: In comparison with the TUG widely used by the physician, the numerous functional tasks present within the SFERE help health care professionals in developing plan of treatment and preventive measures, in order to reduce the risk of falls because the SFERE has the advantage of having more functional and cognitive tasks.

Biography

Hélène Corriveau a Researcher in the Research Centre on Aging at the University of Sherbrooke, and Full Professor in the School of Rehabilitation, Faculty of Medicine and Health Sciences, at the University of Sherbrooke. She is currently a Clinical Research Scholar of the Fonds de la recherche en santé du Québec (FRSQ). She presently has a total of more than 170 publications/presentations. Her primary research themes are: (1) prevention of falls, balance problems among healthy elderly persons and among those osteoporosis as Stroke and (2) evaluation of the effectiveness of intervention programs on balance control and prevention on falls.

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