TUG (Time up and go) with dual task, a predictable sign of falls?

Department of Rehabilitative Sciences “Casa di Cura Privata del Policlinico”, Milano, Italia

Background: Falls are a leading cause of injury and activity limitation in older adults and the adverse effects associated with falling result in significant personal, social and economic burden. Approximately, in a 30% of community-dwelling people aged 65 years and older fall at least once per year, and about 15% fall twice or more per year (1). A recent meta-analysis point out that Time Up and Go (TUG) alone not satisfy the criteria to predict people with high risk of falls (2). Moreover, dual task could compromise patient’s balance causing falls and often patients refers to have fallen during activities in dual task. Evidence are growing about the importance of cognition for safe walking (3).

Objective: We aimed to test the hypothesis that TUG with dual task and iTUG (instrumental TUG) could be proposed to predict falls.

Materials and Methods: We enrolled all patients admitted to the Department of Neurorehabilitation “Casa di Cura del Policlinico” from 1st of June until 30th of July 2016, those satisfy able to walk for at least 15 meters without physical assistance with or without cane/walker. At this aim, the following measures were adopted: Mini-Best, manual and instrumental TUG (Time up and go) at entry and at discharge. A fall’s register was delivered to patients when finished the cycle of neurorehabilitation. These were contacted monthly along 3 months to monitor numbers and modalities of falls. Fourteen neurological patients were studied. The Mann-Whitney U test was used to compare differences between groups.

Results: Four of the 14 patients enrolled fell down. We divided the sample in 2 groups: fallers and non-fallers. Median Mini-Best score was higher in non-fallers (20/28, IQR: 9) than in fallers (16/28; IQR: 2). Seven (out of 10) non-fallers patients scored larger than 0 on item 28 of the Mini-Best (i.e. TUG test with dual task), while only 1 (out of 4) patient scored larger than 0 on item 28 of the Mini-Best. Traditional TUG (tTUG) mean time of non-fallers (13.06 [s]; SD= 5.01) was lower than traditional TUG of fallers (22.13 [s]; SD=7.45) p=0.3. Instrumental TUG (iTUG) mean time of non-fallers (14.8 [s]; SD=5.29) was lower than instrumental TUG of fallers (26.8 [s]; SD= 12.90) p=0.03.

Discussion: Even if the we studied a little sample, from data emerged that if TUG DT= 1 or 2 there is not risk of falls. Moreover the iTUG resulted to be more significant that tTUG.

Conclusion: We propose TUG variations (e.g. TUG test with dual task, item 28 of Mini-Best and iTUG) as more accurate instruments than traditional tTUG in the study of fall’s risk.

Acknowledgement: This research is part of the commitment to the European Innovation Partnership on Active and Healthy Ageing, Action Group A2 Fall Prevention.
Bibliography:

