Prediction of falls among the elderly at risk – Part I

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Falls and falls prevention among the elderly population has become a major concern to health organizations and governments globally.[1] Falls are among the most common and serious problems facing elderly persons and their health care providers.[2]

Facts

Falling is associated with considerable mortality, morbidity, reduced function and pre-mature nursing home admissions.[2] 30% of persons over 65 years old and 50% of persons over 80 experience one fall a year. 90% of hip fractures amongst this population are attributed to falls.[3] Hip fractures lead to serious disability – 60% will need some form of assistance at home to carry out simple daily activities such as dinner preparation and walking. About 20% are ultimately admitted into nursing homes.[4]

However, not all falls are considered to be equally important. Falls that count are those that occur during daily activities, where there is no recall of preceding events or there is a loss of consciousness, when injury was sustained, long lie and subsequent loss of confidence.[5]

With the exception of syncopal episodes, most falls are multifactorial in origin, resulting from a combination of intrinsic and extrinsic factors (Figure 1). However musculoskeletal weakness amongst the older population is the major contributing factor followed very closely by impaired balance. These physiological changes are not a direct effect of ageing but due to physical inactivity that comes along with the lifestyle adaptations of this population. Worth noticing is the fact that women have a higher incidence of falls as compared to men, the most likely factor being the increased use of psychotropic drugs amongst this gender, as well as the ratio of weight to lower limb strength, and living alone.[5]

Intrinsic Factors	Extrinsic Factors
Age Musculoskeletal weakness Gait Instability Medication Vision Chronic illness	Home Hazards Public environment Footwear

Source: Kings College Hospital (UK)

Figure 1: *Intrinsic and Extrinsic risk factors*

How to predict falls among the elderly

During her conference held in Sydney Dr. Jacquie Close, a prominent researcher in the field related to falls, highlighted the most useful clinical indicators used to identify whether an individual is likely of sustaining a fall in the future. These indicators lie in 4 simple questions:

- **Is the patient over the age of 65 years?**
- **Has the patient suffered more than one fall in the last 6 months?**
- **Was the falls indoors?**
- **Is the patient on more than 4 medications?**

Three out of four affirmations of the above would require **further investigation** as the patient is most likely to suffer another fall in the next 3 months with serious debilitating effects. The American Geriatrics Society (AGS), and the British Geriatric Society (BGS) guideline recommends the Timed Up and Go Test - TUGT as an effective screening tool for identifying older people at increased risk of falls.[6] TUGT has been validated and recommended as a simple screening tool and may be used in parallel by general practitioners to identify those at risk.

1. Stand up from chair with arm rest (standard height 43 cm)
2. Cover a distance of 2.5 – 3 meters, at patients' own pace
3. Turn around and sit back again on chair
4. The target time is 10 seconds for community dwellers and 15 seconds for more frail individuals

Figure 2: *Screening Test – Timed Up and Go*

References

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