Medical Xpress

First ever objective analysis of elderly falls could lead to improvements in fall prevention

October 16 2012

Researchers have completed the first ever objective, real-life analysis of the causes and circumstances of falls in elderly people, which could lead to improvements in the understanding and prevention and of falls in this group.

The Article, published Online First in *The* [Lancet](), reveals that previous studies – generally based on interviews, incident reports, or artificial laboratory simulations – might have missed some of the most important features of falls in elderly people.

Scientists analysed videos of 227 falls from 130 individuals, taken from CCTV systems in public areas of two facilities providing long-term care for the elderly, in British Columbia, Canada. They assessed the cause of the fall and what the person was doing when they fell, finding that the most frequent cause of falling (41%) was incorrect weight shifting, where the person shifted their bodyweight causing their centre of gravity to move outside their base of support.

Trips or stumbles (21%), hits or bumps (11%), loss of support (11%), and [collapse]() (11%) were also common causes of falls in the study. 25% of recorded trips were due to the foot being caught on a table or chair, suggesting that awareness of this type of hazard needs to be improved among care home staff. Slipping accounted for just 3% of falls, yet as the researchers point out, falls caused by slipping have been the focus of most laboratory-based studies of the dynamics of falling.

Falls are the most frequent cause of unintentional injuries in elderly people (at least 65 years old), accounting for 90% of hip and [wrist fractures](#) and 60% of [head injuries](#). Around 30% of elderly people who live independently and 50% of those who live in long-term care fall at least once each year.

According to Professor Stephen Robinovitch, at Simon Fraser University in Burnaby, Canada, "Prevention of falls in elderly people needs to be a public health priority. However, up to now, the general scarcity of reliable information on falls in elderly people has hindered the development of safer environments for older people and fall prevention programmes. Our study provides long-missing objective evidence of the causes and circumstances of falls in elderly people, and should open up new avenues for the prevention of fall injury in long-term care."

Writing in a linked Comment, Dr Clemens Becker, at Robert Bosch Hospital in Stuttgart, Germany, highlights the problems caused by the lack of objective research in this area, writing that: "Many assumptions and decisions about falls are still based on subjective and often biased information. This absence of understanding is one of the reasons why efforts to prevent falls have had little success, although some progress has been achieved."

However, Dr Becker adds that limitations of the study – particularly the fact that only falls in public areas were studied, which are thought to only account for half of all falls that take place in long-term care homes – should spur on further objective research in this area, using innovative technology: "To study falls in the community, we will need a technological shift. Evidence provided by Robinovitch and colleagues of the movement patterns that lead to falls is helpful in guiding the design of sensor-based fall monitoring systems. The next step will require coordinated action and possibly an open-access database that would allow real-world fall data, obtained through different sensors, to be

shared."

Professor Robinovitch also hopes that the results of this study will aid any future technological developments in the field, adding that, "Our results also inform the design of wearable sensor systems for provision of information about movement quality during daily activities, and for automatic detection of falls in elderly people—a rapidly developing discipline. In particular, our results identify the most common sequence of events, including activities leading to falls, and subsequent causes of imbalance, that should be considered in designing and testing of fall detection algorithms appropriate for the long-term care population."

More information: www.thelancet.com/journals/lan … (12)61263-X/abstract

Provided by Lancet

Citation: First ever objective analysis of elderly falls could lead to improvements in fall prevention (2012, October 16) retrieved 26 April 2024 from https://medicalxpress.com/news/2012-10-analysis-elderly-falls-fall.html