

The Need for Support Care for Successful Fall Prevention

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ABSTRACT

Falls contribute significantly to serious injuries and death and are particularly common in the elderly. In addition to the damage caused by the falls themselves, the immobilization involved in the recovery from fall-related injuries is associated with deteriorating health and specific health risks, compounding the healthcare costs incurred from falls. Troublingly, falling also enhances the risk for subsequent falls. It is thus vitally important that effective fall prevention measures are developed and implemented, especially for vulnerable populations who are at heightened risk for falls. These populations include the elderly as well as those with relevant health conditions such as dementia and those taking certain medications. Research has shown that evidence-based fall prevention programs can effectively reduce the occurrence of devastating falls and prevent resulting injuries. With the appropriate level and amount of support care, morbidity, mortality, and healthcare costs associated with falls can be substantially reduced.

Keywords: Immobilization; Health risk; Support care; Dementia

INTRODUCTION

Falls are a major contributor to death and serious injuries

Falls are a major public health challenge because they lead to death, serious injury, and unlike other accidents, increase the risk of reoccurrence. Each year, 37 million people require medical attention after falling [1]. Though some falls are largely uneventful, nearly 700,000 people die annually from injuries sustained from these falls, making falls the second leading cause of unintentional death worldwide. Falls are the leading cause of Traumatic Brain Injury (TBI), including subdural hematomas, as well as hip fractures, each of which increases the likelihood of death in the short-term [2-8]. Falls are the cause of nearly half of TBI-related hospitalizations and more than 9 out of 10 hip fractures.

In the U.S, falls are also the most common cause of nonfatal injuries in people 65 and older, with millions of elderly people falling each year [2,9]. At least 20% of elderly falls cause serious injuries, leading 3 million older people to seek emergency care

for fall-related injuries annually [2,10-12]. For the one in four elderly people who fall each year, their fall doubles their risk for subsequent falls and the associated complications and costs. Even when younger, healthier populations are taken into account, up to 15% of falls lead to major injuries and lead to new health-related risks and increased spending [5].

LITERATURE REVIEW

The immobilization required to recover from falls is detrimental to health

In addition to damage sustained directly from fall-related injuries, the recovery process from falls is also associated with health deterioration. These indirect results of falls often occur due to the prolonged periods of bed rest or immobility required to heal. Indeed, nearly every organ system of the body is impacted by prolonged immobilization [13].

The complications that arise from bed rest and immobilization that follow accidental falls are most commonly musculoskeletal and cardiovascular in nature [14]. Musculoskeletal complications

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Received: September 20, 2021; **Accepted:** October 04, 2021; **Published:** October 11, 2021

Citation: Lichtblau CH, Warburton C, Meli G, Gorman A (2021) The Need for Support Care for Successful Fall Prevention. Int J Phys Med Rehabil. S8:002.

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include disuse osteoporosis, degenerative joint disease, soft tissue alterations, and loss of muscle strength and endurance, whereas cardiovascular complications include venous thromboembolism, orthostatic hypotension, increased heart rate, and decreased cardiac reserve. Bedrest often also leads to a host of other complications, including pressure ulceration, urinary tract infections, endocrine and renal complications, glucose intolerance, hypercalcemia, constipation, and pneumonia [13,15].

Falls significantly increase healthcare spending

Falls are costly due to both the acute and chronic damage they cause. Hospitalizations, diagnostic testing, and potentially complex interventions contribute to these costs [16]. More than \$750 million is spent each year on care related to fatal falls, and \$50 billion is spent on medical costs from non-fatal fall injuries [17,18]. Non-fatal falls lead to \$29 billion in Medicare spending, \$12 billion in private or out-of-pocket spending, and \$9 billion in Medicaid spending.

The mean cost for each fall that results in an emergency department visit has been estimated at nearly \$11,500 [19]. For those requiring hospitalization, the average cost increases to nearly \$30,000 per patient. Each hip fracture, for instance, is associated with a cost of over \$39,500.

The complications associated with recovery and bed rest compound these fall-related costs [15]. With the number of elderly people in the U.S. growing, falls and related costs are likely to increase in coming years.

Injuries sustained from falls enhance risk for subsequent falls, compounding the importance of prevention

People who fall are at enhanced risk for subsequent falls for several reasons. For one, falls can diminish the ability to remain active, thereby eroding the strength and balance required for stability.

Reduced activity following falls is observed not only due to the injuries endured from the fall but also because of a fear of falling that commonly develops in people who fall. Between 2 and 4 out of every 10 people who fall become afraid of falling [20,21]. This fear reduces quality of life but also leads people to become less active, which in turn garners a loss of strength and balance [2,22].

In addition to the fear of falling that occurs following a fall, injuries sustained from falls can also enhance fall risk. People who have suffered TBI, for instance, have been identified in several studies as a population at high risk for falls [23]. Conditions associated with hip pain also increase fall risk, suggesting that those recovering from hip fractures likely have a heightened fall risk [24,25].

Preventing falls requires identifying risk factors, many of which are well understood

In addition to fear of falling and loss of physical strength and balance, other risk factors for falls have also been elucidated and point to the preventable nature of falls. Being of older age significantly increases one's risk for falling, and though age is not a modifiable risk factor, some of the physiological realities that make older people more susceptible to falls can be addressed to prevent falls [20]. For instance, falls are often linked to underlying health conditions that increase fall risk in specific ways that can be managed [5].

Urinary conditions such as Benign Prostatic Hyperplasia (BPH) and Overactive Bladder (OAB) increase fall risk, likely owing in part to their association with nocturia, urinary incontinence, urgency, and frequency, all of which can increase risk for nighttime falls and fractures [5]. Neurological conditions such as Parkinson's disease, multiple sclerosis, and stroke significantly increase fall risk [Metabolic disorders, cardiovascular disease, chronic kidney disease, visual impairment, and arthritis are also associated with enhanced fall risk [24,26-30].

Several medications aimed at improving symptoms of conditions associated with falls can themselves enhance fall risk [5,31-33]. Psychotropic drugs, anticonvulsants and blood pressure-lowering drugs are the primary culprits for medication-associated falls. However, sedatives also increase fall risk, likely due to their tendency to impair coordination.

Dementia substantially increases risk of falling

There is an abundance of data on the ways in which dementia increases people's risk of falling, as people with dementia are twice as likely to fall compared to people of similar age who are cognitively healthy [34]. Dementia increases fall risk through multi-pronged mechanisms that include a reduced ability to recognize hazards [20]. Approximately half of older adults with dementia in community-dwelling settings fall every year.

In addition to its detriment to cognition, dementia also affects fall risk by impairing balance and gait. Research has also shown that the results of falls can be worse in those with dementia and other neurodegenerative diseases than in those without it. For instance, fall-related subdural hematomas have been observed to lead to more severe consequences in those with neurodegenerative disease [35].

DISCUSSION

Evidence-based fall prevention programs are effective in preventing devastating falls

Given the devastating consequences of fall-related injuries like TBI and hip fractures, as well as the potential for falls to be fatal, it is imperative that we develop and implement effective strategies for fall prevention, particularly amongst those most susceptible to falls. Fortunately, data have shown that fall rates can be reduced with effective preventative interventions [36].

Individualized treatment to address patients' risk factors has been observed to reduce fall rates by 24% [20]. Today, we have accumulated data that can guide fall prevention programs and prevent fall-related injuries at different points along the care continuum [9]. As such, experts now recommend that physicians advise their patients to adopt evidence-based prevention strategies to reduce their risk of falling [20].

Research has shown that effective fall prevention requires patient-centered strategies that are proactive, multidisciplinary, and holistic and that incorporate details of a person's medical and psychological condition, as well as their social circumstances [5]. However, evidence points to a high risk of falling and sustaining fall-related injuries at home, and thus support care is needed in the home for those at highest risk of falling [37].

Appropriate support care can reduce morbidity, mortality, and costs associated with falls

The type of support care people receive significantly affects their health outcomes, and lack of the appropriate care has been established as a major risk factor for adverse events [38]. In the case of falls, support care can make the difference in preventing falls and the devastating sequelae. For example, in-home care may help to reduce the hospitalizations in the month following hospital discharge, up to 15% of which are due to fall-related injuries [39].

Nurses can be trained to reduce the risk of falls, and data have shown that more falls occur when people are surrounded with nurses with fewer relevant skills [40,41]. There are several ways that nurses and other in-home care providers can help to reduce fall risk, including through facilitation of exercise, cognitive behavioral interventions, and environmental modifications. Balancing exercises and other exercise programs have been shown to reduce fall risk, while cognitive behavioral interventions have proven effective in reducing recurrent falls in those with cognitive impairments [20,42]. In addition, when occupational therapists have helped to modify older people's living environments, fall rates declined [42].

CONCLUSION

Though falls are a significant contributor to death, injury, health-related complications, and healthcare spending, adequate support care can enable evidence-based prevention to reduce the incidence of falls and to minimize the devastating consequences. Fall prevention is so critical today, particularly among the elderly, that guidance from the American Geriatrics Society and British Geriatrics Society (AGS/BGS) suggests screening everyone 65 years and older for their fall risk every year. In the same vein, Medicare examinations requires fall risk assessments.

Though people who fall often become afraid of falling and more cautious, falling ironically enhances the risk for subsequent falls, and this domino effect of falls begetting more falls highlights the need to prevent falls from occurring in the first place. Because many falls, fall-related injuries, and fall-related costs occur in those who have previously fallen, effective prevention strategies that help people to avoid falls altogether could significantly

improve health outcomes and reduce costs associated with falls. Support care should be systematically deployed to reduce the relevant risks in vulnerable populations.

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