



Preventing Falls in the Elderly: A Guide for Caregivers

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Editor's Desk

Dear Readers,

Welcome to the 15th issue of the KIMS e-newsletter, focusing on the important topic "Preventing Falls in the Elderly: A Guide for Caregivers"

This edition aims to raise awareness about the risks of serious injuries from falls by aged people and provide practical strategies for prevention.

Inside this issue, you'll find valuable insights, expert opinions and innovative approaches addressing fall prevention and management.

Ageing is a natural process making people relatively less efficient and less healthy, with changes in memory and cognitive functions. These factors increase our vulnerability to falls causing injuries. A healthy person in their 70s generally experiences a 10-20% reduction in gait speed and stride length compared to a healthy individual in their 30s. Reports say that women are more likely than men to fall. Most falls occur due to many health conditions of people that have added effects on gait, balance and vision that put people at risk for falls. With age, routine jobs like getting out of bed, going to the bathroom and climbing steps can be riskier than we generally imagine.

It's important to recognize that a fall can be a disruptive event, especially in old age, affecting physical as well as mental health impacting the quality of life. However, various forms of guided exercises and using appropriate wearable devices can help prevent falls and injuries. Engaging in physical and mental activities even during old age will be the right way of life to significantly reduce the risk of falls.

We hope you find this newsletter informative and helpful in taking proactive steps towards healthy aging.

Your feedback is welcome, and we look forward to hearing from you.

With regards

Dr. Bhujanga Rao Vepakomma

Chief Editor

Preventing Falls in the Elderly: A Guide for Caregivers

When a person queried the caretaker while visiting a retirement home for the elderly, "What is the greatest cause of the elderly people here having to be moved to the hospital for an emergency - heart attack, stroke or vertigo"? The answer was, "Doubtless it is, falls."

When a retired pilot met his doctor, he told him that he had been boxer when he was young, a regular gym practitioner, and that he had even participated in marathons in his career. Now, when the doctor asked him to stand on one leg with stretched hands, he could not do so. The doctor said, "Gentleman, now you are old".

An old woman felt that she had fallen and broken her hip. The doctor, after examination, told her that her hip had broken first, and your fall is the result of the fracture (pathological fracture) and not the cause. This is due to the weakening of bones caused by osteoporosis, your bones have no mineral density, and bone mass has decreased gradually over time.

"Elderly people don't always listen to what their body is telling them, and they are often in denial. I think this denial is what gets them in trouble," quipped a child of an elderly person.

Falls are a major health issue for elderly persons and the fifth leading cause of death in this age group. Falls among older adults are not only common but also potentially dangerous. They can cause bone fractures, brain injuries, and permanent complications like loss of mobility, chronic pain and even a threat to life. When elderly persons fall, minor or serious injuries may result. On average, in one-fifth of the cases they can have severe consequences for their health and well-being.

The risk for falls undoubtedly increases with age as our bodies experience changes that can affect gait, stride balance, muscular strength and mind-body coordination.

This newsletter is published to make the readers aware of the risks of serious injuries from falls and how to avoid them as people age. Although people of all ages fall, this newsletter discusses falls in the elderly because of the serious consequences such as soft tissue injuries, fractures, emergency and hospitalisation. In addition, it may enhance the fear of falling, loss of physical function, dependence and decreased quality of life in the elderly. In India, 31% of people over 65 years of age usually encounter falls. Falls can lead to significant health consequences like

disability and mortality, depending on physical status like visual impairment, previous falls, osteoarthritis, depression etc., which are required to be considered for implementing effective prevention programs.

The high prevalence of falls among India's growing elderly population underscores the need for more research and focused public health interventions to prevent these injuries. Falls can result in minor injuries like scratches and cuts that can be treated with basic care. But a point to be noted is that beside physical injuries, psychological effects will also be present after falls. A fear of falling, accompanied by a reduction in mobility and restriction of certain day-to-day activities can hinder social movements.

Designing and implementing programs that address the known risk factors can help to improve the quality of life for older adults and reduce the societal burden of fall-related injuries.

1. Risk Factors for Falls: A combination of risk factors causes most falls. The chances of falling will become greater with the increase in risk factors which can include age-related changes such as gait, balance, mobility, decrease in vision and audibility as well as chronic health conditions like dementia, parkinson's disease, arthritis, osteoporosis, diabetes and the effects of regular medication.

Additionally environmental risk factors at home, in the workplace and in care homes which include wet floors, cluttered items on floors, inadequate lighting, improper or broken furniture and use of worn-out footwear can enhance the risks of falling. According to several studies, being a female itself is a significant risk factor.

Strength, agility, tolerance to external stress and sense of balance decrease as we age. The natural deterioration of the body with age is common but one can slow it down by choosing a care-driven lifestyle and following healthy habits. Although unexpected falls in old age are not uncommon, taking extra efforts to be more careful and avoiding the wrong body movements will help to reduce the risk of older people falling due to imbalance.

The early step in the evaluation is the assessment of gait, balance and muscle strength. There are many standard assessment methods, such as the Timed Up and Go Test (TUG), which measures the time it takes to stand up from a chair, walk a short distance, turn and return to the chair.

The Functional Reach Test, which basically assesses a person's functional balance by measuring how far they can reach forward without moving their feet.

The Performance-Oriented Mobility Assessment (POMA) test assesses balance and gait but is a more involved test, with multiple sub-components compared to the TUG.

The Berg Balance Scale Test is a comprehensive measure specifically designed for static and dynamic balance, but it doesn't include a timed walking component like the TUG.

And lastly, Short Physical Performance Battery Test, which includes tasks that assess gait speed, balance and strength making it an ideal tool for evaluating overall physical performance. One or two of these validated tests can be followed to assess gait, balance and muscle strength.

2. Drug & Medication: Researchers have found that the use of multiple drugs and specific classes of drugs is associated with an increased risk of falls. Generally as the number of drugs taken each day increases, the chance of falling also increases. Drugs that can cause falls include anti-hypertensives, diuretics, sedatives, antidepressants and antipsychotics. It is important to take advice from a health care professional if you are taking medications that can be a reason for likely falling, regarding the side effects of your medications and strategies to minimize the risk of falling. Dose reduction or discontinuation of the drug may be necessary to prevent falls after a proper medical review.



4. Cognitive Impairment: Researchers have identified cognition as a key player in balance and in increasing the risk of falls. In a research study the authors have found that body mass index, gender, socioeconomic status, comorbidity, hobbies and the clinical dementia rating scale are independent risk factors for falls in older people with cognitive impairment. In a systematic review, it is found that exercise is a single intervention that can prevent a fall in people with cognitive impairment and Parkinson's disease.

5. Orthostatic Hypotension: A sudden drop in blood pressure upon standing, caused by volume depletion and autonomic dysfunction along with cardiovascular causes such as carotid sinus hypersensitivity (excessive response to pressure on the carotid sinus leading to a drop in blood pressure or heart rate) and arrhythmias, including bradycardia (slow heart rate), heart block and tachyarrhythmias (fast heart rate), can cause syncope and increase the risk of falls in older people. The temporary loss of consciousness caused by a sudden drop in blood flow to the brain is termed as syncope in medical literature. This indicates that individuals must be attentive or they must pay attention to the world around them to control and balance their movements, while being mentally alert to avoid distraction.

6. Decrease in Muscle Strength: Gradual loss of muscle strength with ageing indicates reduced strength and stability, which in turn raises the risk of falling. Changes in the nervous system are common with age, which leads to the loss of sensory function that can affect balance. The brain which is the seat for sensory fusion gradually loses its ability to properly integrate the cues from the visual, auditory and proprioceptive systems. Cognitive decline results in poor motor responses, making it difficult to correct body balance and slowing down gait movements. Diseases such as arthritis, parkinson's disease, alzheimer's and diabetes can hurt mobility increasing the risk of falls. Muscle health is very important



3. Visual Impairment: Poor vision, vertigo and imbalance can cause problems for elderly people. Good vision is essential for preventing falls. With excellent vision only one can observe the perception of depth and identify the possibility of hits and accidents and freely move around spaces. Regular eye examination is recommended for detecting vision problems in advance such as cataracts, glaucoma, diabetic retinopathy or macular degeneration, to reduce the risk of falls. The beneficial effect of cataract surgery in reducing falls has been well established. Bifocal glasses are known to shield the ground-level hazards. Hence, unifocal glasses are advised for outdoor use in older people.

for maintaining quality of life. Foods that improve bone and muscle health, comprising dairy, leafy greens, lean meats and whole grains are recommended while reducing the intake of alcohol consumption to avoid derailing balance and control of movements. Additionally, stop or avoid excessive alcohol consumption as it can impair judgment, balance and coordination.

7. Use of Supportive Devices: Elderly people should be encouraged to use assistive devices like canes, walkers or wheelchairs that assist stability. It is essential for older adults to drink enough fluids and eat a balanced diet rich in vitamins, minerals and protein to overcome fatigue, weakness and inactiveness.



8. Environmental Factors: The environmental risk factors for falls include uneven or slippery surfaces, poor lighting, clutter in the pathways and low-level furniture. In addition, ill-fitting footwear can impair balance and increase the risk of falls. Therefore home modification, proper footwear and the use of appropriate assistive devices are advised. It is reported that a large percentage of falls occur in living quarters, where household items and environmental aspects will coalesce to cause falls. To counter this, it is better to remove items like loose rugs, kids' toys, electrical wires or overused furniture that might obstruct walkways.

9. Simple Modifications for Everyday Safety: It is becoming common practice to fix grab bars in bathrooms near the toilet and in the shower or bathtub area to provide support when standing or moving. All family members have to ensure that all halls, rooms, staircases are well-lit and night lights are used wherever required to prevent tripping after dusk. Arrange non-slip mats in the bathroom, kitchen and other areas prone to wetness or moisture. Make sure that chairs and beds are in good condition, easy to use and that tables and benches do not have protruding sharp corners. Avoid wearing clothing that is too long and that touches the floor, such as dressing gown as this can cause you to trip over it.

10. Fall Complications: In general, the complications depend on the kind of injuries you had received from the

fall, the care you had and whether your physical health is good. If you are 65 years or older, life changing situations are likely to arise from fall related complications. 'What I should look for' if an elderly person falls is the general question many get. Do not attempt to move the elderly unless you are a doctor, as it may cause further injury. Keep them awake by talking while calling for an ambulance. Sometimes, there may be a necessity to stay in hospital for longer periods due to fall related injuries.

11. Nature of Injuries: Hip fractures are the most common and serious injuries that happen from falls and only 50% of those who get hospitalized for hip fractures can be expected to lead the same quality of life possessing same level of mobility functions. Death among older adults is quite common due to serious fall injuries. There are certain reasons why admission to a hospital is necessary after encountering falls. They include use of blood thinning medication which delays blood to clot and poses a threat of internal bleeding. Sometimes injuries to head, chest cavity, abdomen and backbone may lead to black out instantaneously. Sometimes, falls can accompany with confusion, giddiness or unusual behaviour which needs to be taken seriously or reasons to go for hospital admission. Another situation which demand immediate medical help is when the fall is due to a person suffering from sudden heart attack or brain stroke or in such an emergency situation.



12. Shared Responsibility for Elderly Safety: Older people have many opportunities to improve their safety by avoiding many falling episodes. By living an active daily life and making small adjustments to their home, they gain with less risk of falling first and reduce the serious injury due to falling. The older people should not hesitate to take the help from caretakers and vice-versa. Caretakers or relatives or friends should feel it as their duty to help the older people to avoid certain kind of falls among them. This kind of understanding makes the family atmosphere for all very comfortable and stress free. Though it is easily said than done, but efforts from all is necessary to create a better quality life for the elderly among us. Additionally,

the elderly person need support in taking medication on time, with correct dose or changes that may require with each visit to a doctor with passage of time.

13. Exercise Options for Seniors: Studies have shown that physical and mental exercises will reduce the risk of falls. A combination of exercise programs comprising flexibility, strengthening and balance training programs tailored to the needs of older people is recommended. Strengthening muscles and improving balance is one of the most effective ways to reduce the risk of falls. Simple practices like regular walking and aerobic activities at home can improve stability and coordination. Regular exercises done routinely will also help to maintain body flexibility while improving the ability to react quickly and avoid falls. Yoga and Tai chi are known to improve body fitness and help prevent falls. The exercise program can be a home-based, outpatient-based or community-based program.

In India, there is a feeling that gyms are meant for youngsters. This notion needs a change. Elderly people need to visit more frequently for improving muscle strength, balance, gait etc. For seniors who want to start an exercise routine if they are worried about falling during exercise it is suggested that if they can afford an exercise club they strongly consider water aerobics. Of course it is not for swimming. It is only to practice aerobic exercises which is permitted while standing in water up to your chest. Water supports you so you fall more slowly. It also makes your muscles work hard.



14. Quality of Life: Falls have a significant impact on the quality of life with or without injury present. The fear of falling not only cause loss of confidence and depression but also brings about the feeling of isolation and anxiety as older adults stop engaging in outdoor activities like walking or social engagements meeting friends. Initiating several preventive measures at an early stage and reviewing them often can improve one's mobility, reduce their chances of losing balance and help maintain their quality of life for years to come.

15. Fear of Falling: After a fall, many elderly individuals develop a fear of falling again which can result in reduced

physical activity. Further physical decline increases the risk of future falls. People even those who escape injury can lose confidence after a fall. People develop anxiety which leads to a reduction of activity, which leads to depression, further reduced function and isolation. These things increase the risk of falls. It is advisable to seek timely medical attention after a fall especially if he is an older adult or has underlying health conditions. It is crucial to ensure that any injury is properly evaluated and treated.

16. Nutrition: Balanced nutrition plays an important role if you want to avoid falls in old age. As you get older, your body needs more protein. From the age of 65 onwards, consume around 1 gram of protein per kilogram of body weight every day. You should also opt for unprocessed foods and eat all available seasonal fruits and vegetables every day. Wholegrain products are also a good choice.



17. Use of Wearable Devices: Wearable devices like smart watches or pendants can help to reduce / prevent falls in elderly persons by sudden change in movements. Monitoring gait, stride, balance using sensors like accelerometers, gyroscopes, timers and analysers. These devices in turn alert family members or caregivers automatically when a person meet with a fall. This will help the physiotherapists or doctors to guide them with personalised exercise regimen as well as any target intervention. For those who are living alone, these devices provide a kind of benign support enhancing their feeling of safety and confidence.



Take home: Careful avoidance of falls is necessary to keep the good health and quality of life of older adults. Adopt a life style which is simple, that includes regular exercise, a home that is free from tripping hazards, care in the selection of footwear and following up on medical advice strictly so that the number of falls will be drastically reduced. A doctor's advice is required in case of persons with cognitive issues, hypertension, diabetes and kidney disease. Sincere efforts to improve safety from fall protection, in and around the home are important. Maintaining routine health checkup while following a healthy diet and exercising to boost your balance, strength and flexibility needs no emphasis. Try to stay both physically and mentally active either at home or through group exercise programs such as yoga and Tai chi, which are excellent options.



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