

Post Fall Syndrome - The One Step away Disaster - A Case Report

Robert Dragan* and Jose Luis Rosario

Department of Psychobiology, Federal University of São Paulo-UNIFESP, Rua Botucatu, Andar, Vila Clementino, São Paulo, SP, Brazil

***Corresponding Author:** Robert Dragan, Rehab Point inc. 38026 Medical ctr. Ave. Zephyrhills FL, USA

Received: October 15, 2019; **Published:** November 07, 2019

Abstract

The fear of falling (FOF) is a form of the fear associated with concerns about the consequences of falling due to loss of balance.

The fall can be the result of one of 400 factors, including decreased strength, movement organization, and movement coordination. The fear of falling itself can lead to falls. It seems that 8% of falls happen without the presence of any risk factors.

The present study is the case of an active 83 years old Caucasian male dweller who has tested clear for fear of falling (FOF). Two days later after the test, he fell. This fact has raised some questions about the tests we are using to evaluate healthy, active seniors. Are they enough?

Keywords: *Fear of Falling (FOF); Post Fall Syndrome*

Introduction

Fear is a natural unpleasant emotion known to most humans. The fear of falling (FOF) is one of the forms of the fear associated with concerns about the consequences of falling due to loss of balance. A recent study revealed that elderly dwellers pointed out that fear of falling ranked first when compared to other common fears (i.e., fear of robbery, financial fears) [1].

Falls can be the result of one of 400 factors [2] including decreased strength, movement organization and movement coordination. These factors can be an outcome of the prolonged immobilization or simple decreased level of activities due to the natural process of aging. However, on the other hand, fear of falling itself can lead to falls as a consequence of decreasing activities. It is essential to mention that a review of the literature performed in 2008 pointed out that 8% of falls were without the presence of any risk factors [2].

One in four Americans aged 65 and older falls every year [3] and every 11 seconds an older adult is treated in the emergency room as the result of a fall. Every 19 minutes a senior dies as a consequence of falls according to the report of U.S. Centers for Disease Control and Prevention [4]. Among the ones who fell a large percentage (about 50%) will have a fall again in 12 months. Falls between genders vary with women falling 3 times more often than men however, mortality among men is higher [2].

Between dwellers, 5% of falls lead to hospitalization, with 20% admission due to fractures [5].

A nationwide study was performed in the Netherlands in 2007-2009 to establish the cost of falls in the senior population. The mean cost per fall in Euros was 9,370, which is about \$10,400 USD. The numbers increased with age with the fall of a person > 85 years old, cost being 250% higher than 65 - 69 years old [6].

With a growing population of Baby Boomers, we are facing the epidemic of falls. Numbers required reflection and action.

Frequent falls and their potential threatening consequences among seniors increase the fear of falls, especially among the ones who already experienced falling. The aftermath of the fall can be a post-fall syndrome (PFS) which leads to a further decrease of activities. Consequently, it promotes dependence and depression.

The PFS was initially recognized and described in 1982 by Murphy J and Isaacs B when they published in *Gerontology*, "The post-fall syndrome. A study of 36 elderly patients".

The prevalence of PFS in the Senior population is variable and depends on many factors. The study performed among inhabitants of Social Welfare homes estimate the presence of PFS as high as 74% of the researched population [7]. However, there was another study performed among patients admitted to the hospital due to a hip fracture, there were a presence of PFS that was detected by a geriatrician physician. That study estimated PFS was only in 5.1% of the tested population [8]. A study performed in France added confusion about the widespread presence of PFS. The authors applied a survey to hospitalized after fall patients, labeling 47% of the tested population as bearers of PFS [9]. We can discuss and dispute the extensiveness of the presence of PFS in the senior population, however, we have to agree with the statement: "PFS is considered to be a medical emergency in geriatric patients, given the risk of a decompensatory "domino effect" and mortality. Unfortunately, there is currently no consensus on how to detect patients at risk of PFS" [9].

Fear of falling can also affect people who have not fallen, but they have witnessed friends and family members falling before.

Case Study

The following is a case study of an active 83 years old Caucasian male dweller. The patient rated his health as good. The patient is known in our facility from the past. He returned for yearly functional screening. That was his second time he was attending the screening (the first time a year earlier), so he was somewhat familiar with the tests.

The patient reported using glasses only for reading when lighting conditions are inadequate. He was using two hearing aids (both ears); the left ear was diagnosed with a 90% loss of hearing.

Medical history and medications not changed since last year, so we are expecting no influence on patient's functional condition.

The patient records his daily number of steps (using an electronic, famous brand, pedometer allowing the patient to keep a daily log of numbers of steps). He established his daily goal as 10,000 steps based on the famous "10k steps/day" slogan advertised by the media. Last seven days before the appointment, he was performing 8,250 (lowest) to 12,345 (highest) number of steps per day. Our patient was between somewhat active (7,500 - 9,999 steps/day) to active (>10,000 - 12,499 steps/day) according to the step-index proposed by Tudor-Locke and Bassett [10].

It is a standard procedure in our facility to ask three questions to >65y/o patients: 1. Have you fallen in the past year? 2. Do you feel unsteady when standing or walking? 3. Do you worry about falling? The patient's answer was "no" for all three questions.

The patient was asked to rate on the scale 0-10 his fear of falling – and his answer was 0/10.

Functional strength was assessed with standard Senior's Chair Stand Test (as described in "Senior's Fitness Manual" by Rikli and Jones.) The patient was asked to perform sit to stand activity with hands crossed on his chest for 30 seconds. Patient's score was 18 repetition and population (gender/age) average is 12 repetitions. The norm for age/gender is 10 - 15 repetitions [11]. The patient was > 40% above average and 20% above the norm for his gender/age.

The patient completed the Timed Up and Go test (TUG), which is a commonly used screening tool utilized for identification of a person with a risk of falling. The test was performed as described in the CDC's STEADI tools [12]. The test required the patient to perform walking

at normal pace 10' distance from sitting position, turn, walk back in the normal pace and sit down. A senior must complete a test in less than 12 seconds to rule out the risk of falling. Our patient performed the test in 9.6 seconds, which is 20% below the cut off time.

The next test we used for testing was the Four Step Square Test (FSST). This test is allowing to measure the patient's ability to perform the rapid stepping when a sudden change of directions or stepping above the object is required. The test was performed as described by Dite W and Temple VA [13]. The patient was required to step as fast as possible into each of 4 squares made on the floor by crossing the rulers following sequence: 2, 3, 4, 1, 4, 3, 2 and 1. The patient completed two trials, and the best time was recorded. Cutoff for multiple fallers is > 15 seconds and patients are at risk of falling unless they complete the test in less than 12 seconds. This test is more cognitively demanding, required the patient to remember the sequence of steps, and that is also a reason why we are using this test. Our patient's score was 10.2 seconds which is 15% better than expected for a dweller.

As we can see from the results of performed tests, our patient's functional status was higher than expected for a safe male dweller in his age. The patient was expected to be "fall risk-free" based on the tests performed in our facility, his daily activity level (assessed by the number of steps/day) and his medical history. Moreover, his functional status was above the average for his population.

The assessment was performed on Thursday. The patient returned to our facility the next Monday, walking with a cane feeling unsteady and reporting fear of falling and asking for help.

Patient informed us that on Saturday night (2 days after testing) he stepped out of the house "to get some air" and he was walking in the dark, with a poor lighting condition and as he performed a turn, he fell in the swimming pool. He does not remember what happened, he has no recollection of anything that can contribute to the fall. That was not the first time he walked at night on his patio without turning on the lights.

The patient reported no pain and no physical injuries, physical examination showing no bruises and no injuries. However, fear of fall increased to 7/10, and the patient refused to walk without a cane. His gait speed decreased, and movement coordination required for turning decreased. His confidence decreased as well. TUG was performed, and the patient's score this time was 12.2 seconds, and FSST score was 13.6 seconds. The patient has chosen to perform both tests with a cane.

At that time, the patient was informed to return in 2 days. If his fear continues and his functional level doesn't get better, he would be admitted for physical therapy to improve the functional level, safety and to restore non-restricted, cane free living as a dweller.

After two days, the patient reported no changes. Also, he was still using a cane. His daily steps count decreased to 2200 lowest and 3100 best during the previous three days. The patient did not report any pain, lack of confidence, or fear of falling.

The patient was admitted for physical therapy; we recommended: 4 visits in 2 weeks and if needed reevaluation. During therapy sessions, he was educated in balance recovery techniques, Home Exercise Program was prescribed for decreasing a cane dependency. Therapy sessions at the facility included using Overhead Suspension System an Innovative System for Movement Rehabilitation (ISRR), (patient was using a harness attached to under ceiling mounted railing system) to allow for balance and gait training without an assisted device and no risk of falling. The patient reported no fear of falling as long as he was using a device. Multiple objects were placed on the floor with a variety of softness and heights to create an obstacle course. The patient was asked to carry light objects in both hands to promote a cane free ambulating. ISRR was allowing us to avoid using parallel bars and free patient's hands. On the 3rd visit (7 days since admission for therapy) patient came with no cane. At that time, the patient informed that his confidence is improved. During the last therapy session patient was able to perform standing (supported by ISRR) on the 4" hard foam roll. His daily count of steps was improved to 7700 (the day before the 4th visit). At that time, therapy was terminated, and the patient was asked to continue with home exercises and walking. We scheduled a phone follow-up for one month and three months later.

During last conversation 3 months follow up call the patient reported continuation of his daily exercises reported full recovery to all activities and maintaining steady daily walking at the level 9,000 to 11,000 steps/day. Patient informed that he will be returning in 12 months for the next functional screening.

Discussion

Questions are raised

- Initial patient's evaluation showing no functional problem, so, was the patient in the group of 8% of fallers with no risk factors as mentioned at the beginning?
- The tests which we used are commonly utilized for testing the older adults. Are these tests sufficient for healthy active senior? With the growing group of active Baby Boomers shouldn't we change or improve tests? Shouldn't we develop new more demanding tests which will reflect the challenges the active seniors faces during daily life?
- Let us repeat the statement quoted earlier "PFS is considered to be a medical emergency in geriatric patients, given the risk of a decompensatory "domino effect" and mortality. "Certainly, after his fall the patient was in high risk of developing PFS. It was just a coincident that he was tested couple days earlier in our facility. What would happen if there would have been no testing that day?
- With a high number of Seniors not reporting falls to medical providers and family members, what is the probability of him not reporting a fall and fear of falling? How long he would be using a cane without attending Physical Therapy? How his life will be affected? Would the cost of recovery be higher than 4 visits if the patient would not have addressed the problem as soon as he did?

A study performed in Hawaii showed that patients who fall are less likely to discuss the risk of falling and prevention, than the ones who did not fall [14].

Conclusion

This case report illustrates how unpredictable it may be for an active elder dweller to change his status. Additionally, it is essential to suggest the need for new testing.

Life expectancy is growing. Thus, there is an increasing wave of new active elder dwellers demanding from health care providers testing improvements to eliminate falling risks.

Bibliography

1. Howland J., *et al.* "Fear of falling among the community-dwelling elderly". *Journal of Aging and Health* 5.2 (1993): 229-243.
2. Edward Czerwiński., *et al.* "Epidemiology, Clinical Significance, Costs and Fall Prevention in Elderly People". *Ortopedia Traumatologia Rehabilitacja* 5.6 (2008): 419-428.
3. Bergen G., *et al.* "Falls and Fall Injuries Among Adults Aged \geq 65 Years - United States, 2014". *Morbidity and Mortality Weekly Report* 65.37 (2016): 993-998.
4. Falls Prevention Facts.
5. Borowy P., *et al.* "Falls risk assessment in patients with osteoporosis". *Osteoporosis International* 14.6 (2003): S10.
6. Hartholt KA., *et al.* "Costs of falls in an ageing population: a nationwide study from the Netherlands (2007-2009)". *Injury* 43.7 (2012): 1199-1203.
7. Bartoszek Adrian., *et al.* "Risk Assessment, Circumstances And Consequences Of Falls And Their Conditioning Among Social Welfare Home Inhabitants". *Journal of Education, Health and Sport* 6 (2016): 257-266.

8. Teresa Alarcon., *et al.* "Post-fall syndrome: a matter to study in patients with hip fractures admitted to orthopaedic wards". *Age and Ageing* 35.2 (2006): 205-206.
9. Charlotte Mathon., *et al.* "Post-fall syndrome: Profile and outcomes". *Annals of Physical and Rehabilitation Medicine* 60 (2017): e50-e51.
10. Tudor-Locke C and Bassett DR Jr. "How many steps/day are enough? Preliminary pedometer indices for public health". *Sports Medicine* 34.1 (2004): 1-8.
11. Rikli R and Jones CJ. "Senior's Fitness Manual" (1999).
12. Timed Up & Go (TUG).
13. Dite W and Temple VA. "A clinical test of stepping and change of direction to identify multiple falling older adults". *Archives of Physical Medicine and Rehabilitation* 83.11 (2002): 1566-1571.
14. Yuka Yamazaki., *et al.* "Insights about Fall Prevention of Older Adults in the State of Hawai'i". *Hawaii Journal of Medicine and Public Health* 76.1 (2017): 3-8.

Volume 10 Issue 12 December 2019

©All rights reserved by Robert Dragan and Jose Luis Rosario.