THE CAUSES OF FALLS IN ELDERLY PATIENTS WITH VISUAL IMPAIRMENT

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ABSTRACT

PURPOSE: *To evaluate the causes of falls in elderly patients with visual impairment and the problems faced by the elderly patients*

METHOD: *A cross-sectional study was conducted by enrolling 96 elderly participants. The data was collected through self-designed Questionnaire. The questions were asked about their causes of fall, visual problems, daily life activities and social activities.*

RESULTS: *Out of 96 patients, 81.3% thought that visual impairment is the cause of falls in elderly. 67.7% were having visual related problems, 35.4% were having trouble in walking, 46.9% were having blurring of images while watching, 43.8% were having trouble sometimes while standing up too quickly, 33.3% were having trouble while not getting well balanced after standing up. 41.7% were having trouble while getting off the stairs, 19.8% were having problem while differentiating the colors, 36.5% were having problem while recognizing the edges of tables or corner of walls, 27.1% missed their steps while getting off the stairs. Around 15.6% were having trouble while walking with their correction, 28.1% felt blackout after called for the sudden response, 44.8% were having trouble in reading or writing, 22.9% had other health problem, 35.4% were having problem with independent travel and 29.2% felt restricted in visiting their friends and family.*

CONCLUSION: *Fall is very prevalent in elderly population. For most of patients, visual impairment is major cause of falls. Visual impairment causes blurring of images and trouble while moving. Falls lead to various general health problems including dependency and difficulty in daily life activities.*

KEY WORDS: *Visual impairment, Cause, Fall.*

INTRODUCTION

A fall is defined as an accident when a person loses the center of gravity without making any effort to restore balance or this effort fails. Falls are the most common cause of injuries in the elderly. The number of people hospitalized due to fall injuries accounted for 40%.[1]Approximately 28-35% of seniors of age 65 years and above fall every year[2] and this percentage increases to 32-42% for those over 70 years of age.[3] Furthermore, 20% to 39% of people who fall, experience the fear of falling which leads to further limitation of activity, free from injury.[4]

The proportion of falls in elders was 50.8% in UAE[5] as compared to 60.3% in Egypt[6], 34.7% in Ecuador[7], 27.6% in Brazil[8], 42.4% in UK[3] and 32% in USA.[5] It has been estimated that half of the cases of falls in people over 65 years of age are recurrent.[9,10]More than half of responders visited the hospital after experiencing a fall and only 19.1% of participants who reported a fall and reported having a stroke after a fall. However, a study conducted in Pakistan showed that only 13% of participants had to visit the emergency department if they had fall and 51% of the falls reported in their study have serious impact of fall and damage.[11]Visual impairment usually falls through the performance of a person's visual acuity, which is a measure of eye resolution, especially the ability to focus and recognize high differences in objects.[12]

Worldwide, at least 1 billion people have a near or distant visual impairment that can be prevented or not addressed. This 1 billion people include those with moderate or severe visual impairment visually affecting 2% to 27% people universal, with blindness affecting up to 2%.[13]In 2017, out of 207.7 million people in Pakistan,

about 1.12 million were visually impaired, 1.09 million had severe blindness and 6.79 million people had a high visual acuity (6/60≤VA <6/18). Presbyopia is the most commonly diagnosed condition affecting up to 12.64 million people.[14]Visual impairment, particularly prevalent in elderly[15] is connected with poor depth perception, consisting of binocular stereopsis or the ability to perceive objects in three dimensions and monocular cues.[16] They are also associated with a reduced ability to distinguish [17] which consist of the capability to identify stimuli of changing clarity counter to a background of a radiance.[16]

Poor vision, contrast sensitivity and intelligence, decreased visual acuity and decreased awareness as well as ecological factors including poor lighting are known to relate to an increased risk of falling among the elderly. The impact of different types of eye conditions on the fall is possible to be significant but not well assumed.[18]Almost 1 in 3 persons aged 65+ experiences a fall each year,[19] with almost one half occurring at home and one third resulting in a fracture in the hip or thigh.[20]Known risk factors for falls and fractures include older age, female sex, past history of cardiovascular disease, stroke, diabetes, arthritis, walking incapacities, dejection, use of treatments and visual problems.[21]

After the fall, it is common for the elderly to suffer serious injuries, require hospitalization and possibly care for a ship for their freedom and the disease to increase.[22]Most fractures in the elderly population are induced by accidental falls. The most common fracture sites are in the spine, pelvis, hip, leg, ankle, upper arm, arm and hand.[23] Injuries after a fall are highly correlated with poor quality of life and may lead to a decline in the mobility and independence of the affected persons. The effect lasts for a long time. Long-term defects include reduced bodily functions, suspicious falls, and institutionalization.[24]It is usually caused by more than one risk factor [25] and is lower especially for adults with poor vision. This study is of more concern of the elderly persons with the causes of fall and with the visual impairment. The persons of visual impairment can be prevented by repeated falls by taking the account of risk factors associated with fall and how these factors can be reduced.

MATERIALS AND METHODS

A cross-sectional study was performed in general population of to determine the causes of falls in elderly patients with visual impairment. Inclusion and exclusion criteria were set prior to be included in the study. Informed consent was taken from the respondent. The confidentialy of the data was make sure. Total 96 people were included in this study. Date was collected by non-probability purposive sampling method in a self-made proforma, in which sixteen questions were asked associated to visual problems and their daily life activities. Data was entered and analyzed on SPSS version 25.0. The statistical result (p-value)≤0.05 was considered significant.

RESULTS

The frequency (percentage) of patients having vision-related problems were 65/96 (67.7%) and 4.2% have no vision-related problem. The frequency (percentage) of patients having trouble in walking was 34/96 (35.4%). The patients having blurred images was 46.9%. The percentage of patients having trouble while standing up too quickly was 40.6%. The patients having trouble while not getting well balanced after standing up was 33.3%. The patients having trouble while getting off the stairs was 41.7%. The frequency of patients having problem in differentiating the colors were 19/96 (19.8%). The zpatients having the problem while recognizing the edges of tables or corners of walls was 36.5%. of patients who missed their steps while getting off the stairs was 27.1%. The percentage of patients having the problem while walking with their correction was15.6%. The percentage of patients who felt blackout after

called for a sudden response was 28.1%.The percentage of patients having trouble in reading or writing was 44.8%. The percentage of patients having other health the problem was 22.9%. The percentage of patients having the problem with independent travel was 35.4%. The percentage of patients who felt restricted in visiting their friends and family was 29.2%. The percentage of patients who thought that visual impairment is the cause of falls in elderly patients was 81.3% (table 1).

Table 1: Problems faced by elderly patients with visual impairment

QUESTIONS	YES	NO	SOMETIMES	NEVER
Vision problems	67.7%	4.2%	26%	2.1%
Trouble in walking	35.4%	32.3%	22.9%	9.4%
Image blurring	46.9%	24%	26%	3.1%
Trouble while standing up	40.6%	15.6%	43.8%	0%
Not getting well balanced	33.3%	22.9%	35.4%	8.3%
Getting off the stairs	41.7%	15.6%	42.7%	0%
Differentiating the colors	19.8%	57.3%	14.6%	8.3%
Recognizing the edges	36.5%	20.8%	42.7%	0%
Missing steps	27.1%	22.9%	45.8%	4.2%
Walking with correction	15.6%	47.9%	26%	10.4%
Blackout for responses	28.1%	45.8%	18.8%	7.3%
Other health problems	22.9%	49%	7.3%	20.8%
Reading or writing	44.8%	24%	29.2%	2.1%
Independent travel	35.4%	29.2%	29.2%	6.3%
Restricted visits	29.2%	50%	18.8%	2.1%
Cause of fall	81.3%	8.3%	9.4%	1%

DISCUSSION

This research was conducted with the purpose to describe the causes of falls in elder patients with visual impairment. Visual impairment is one of cause of falls in elderly patients who are having visual problem and other health issues. After assessing 96 patients by following questionnaire, it is possible to identify that how visual impairment, limitation and incapacity can cause falls in patients.

The study had produced new data in areas where the risk of a group of elderly people with an injury has not been identified, with one-third of people reporting having or at least one type of fall. Participants reported a number of different factors for depression, such as having the strongest association with depression, including poor vision, hyperactivity disorder, medical conditions, and vertigo.[26]

The study was to evaluate the prevalence of falls and their association with visual impairment (VI) in elderly residents in 'homes for the aged'. Interviews were conducted to collect personal and demographic information, systemic health status, fear of falling, depression, and history of falls in the last year. The annual prevalence of falls was 29.1%. The prevalence of falls was higher in elder patients among those with visual impairment due to uncorrected refractive errors.[27]

CONCLUSION

Fall is very prevalent in elderly population. For most of patients, visual impairment is major cause of falls. Visual impairment causes blurring of images and trouble while moving. Falls lead to various general health problems including dependency and difficulty in daily life activities.

REFERENCES

1. Blake A, Morgan K, Bendall M, Dallosso H, Ebrahim S, Arie TA, et al. Falls by elderly people at home: prevalence and associated factors. Age Aging. 1988;17(6):365-72.

2. Prudham D, Evans JG. Factors associated with falls in the elderly: A community study. Age Aging. 1981;10(3):141-6.

3. Downton J, Andrews K. Prevalence, characteristics and factors associated with falls among the elderly living at home. Aging Clin Exp Res. 1991;3(3):219-28.

4. Scott V, Herman M, Gallagher E, Sum A. The evolution of falls and injury prevention among seniors in British Columbia, Canada. Open Longev Sci. 2011;5(1):16-25.

5. Sharif SI, Al-Harbi AB, Al-Shihabi AM, Al-Daour DS, Sharif RS. Falls in the elderly: Assessment of prevalence and risk factors. Pharm Pract. 2018;16(3):432-42.

6. Kamel MH, Abdulmajeed AA, Ismail SE-S. Risk factors of falls among elderly living in Urban Suez-Egypt. Pan Afr Med J. 2013;14(1):1-7.

7. Orces CH. Prevalence and determinants of falls among older adults in Ecuador: an analysis of the SABE I Survey. Curr Gerontol Geriatri res. 2013;1(1):7-10.

8. Siqueira FV, Facchini LA, Silveira DSD, Piccini RX, Tomasi E, Thumé E, et al. Prevalence of falls in elderly in Brazil: A countrywide analysis. Cad Saude Publica. 2011;27(9):1819-26.

9. Almawlawi E, Al Ansari A, Ahmed A. Prevalence and risk factors for falls among the elderly in primary healthcare centers (PHC) in Qatar. Qatar Med J. 2011;2011(1):7-15.

10. Dionyssiotis Y. Analyzing the problem of falls among older people. Int J Gen Med. 2012;5(1):805-13.

11. Hashmi Z, Danish SH, Ahmad F, Hashmi M. Falls in geriatric population-A cross sectional study for assessment of the risk factors. J Dow Univ Health Sci. 2013;7(3):94-100.

12. Sebag J, Sadun AA, Pierce EA. Paradigm shifts in ophthalmic diagnostics. Trans Am Ophthalmol Soc. 2016;114(1):357-63.

13. Hong T, Mitchell P, Burlutsky G, Samarawickrama C, Wang JJ. Visual impairment and the incidence of falls and fractures among older people: Longitudinal findings from the Blue Mountains Eye Study. Invest Ophthalmol Vis Sci. 2014;55(11):7589-93.

14. Hassan B, Ahmed R, Li B, Noor A, Hassan ZU. A comprehensive study capturing vision loss burden in Pakistan (1990-2025): Findings from the Global Burden of Disease (GBD) 2017 study. PloS One. 2019;14(5):492-99.

15. Newton M, Sanderson A. The effect of visual impairment on patients' falls risk. Nurs Older People. 2013;25(8):16-21.

16. Harwood RH. Visual problems and falls. Age Ageing. 2001;30(4):13-8.

17. Legood R, Scuffham P, Cryer C. Are we blind to injuries in the visually impaired? A review of the literature. Inj Prev. 2002;8(2):155-60.

18. Brundle C, Waterman HA, Ballinger C, Olleveant N, Skelton DA, Stanford P, et al. The causes of falls: Views of older people with visual impairment. Health Expect. 2015;18(6):2021-31.

19. Tinetti ME, Speechley M, Ginter SF. Risk factors for falls among elderly persons living in the community. N Engl J Med. 1988;319(26):1701-7.

20. Formiga F, Navarro M, Duaso E, Chivite D, Ruiz D, Perez-Castejon JM, et al. Factors associated with hip fracture-related falls among patients with a history of recurrent falling. Bone. 2008;43(5):941-4.

21. Cumming RG, Miller JP, Kelsey JL, Davis P, Arfken CL, Birge SJ, et al. Medications and multiple falls in elderly people: The St Louis OASIS study. Age Aging. 1991;20(6):455-61.

22. Fuller GF. Falls in the elderly. Am Fam Physician. 2000;61(7):2159-63.

23. Trongsakul S, Vimolratana O. Prevalence and associated factors of fall risk in Thai older people: A primary care based study in Chiang Rai. JCST. 2018;8(2):99-106.

24. M Jason Highsmith Dpt C. Prosthetic and orthotic resources for communicating in a global village. J Rehabil Res Dev. 2009;46(7):13-20.

25. Heasley K, Buckley JG, Scally A, Twigg P, Elliott DB. Stepping up to a new level: Effects of blurring vision in the elderly. Invest Ophthalmol Vis Sci. 2004;45(7):2122-8.

26. Deandrea S, Lucenteforte E, Bravi F, Foschi R, La Vecchia C, Negri E. Risk factors for falls in community-dwelling older people:" A systematic review and meta-analysis". Epidemiology. 2010;21(5):658-68.

27. Marmamula S, Barrenkala NR, Challa R, Kumbham TR, Modepalli SB, Yellapragada R, et al. Falls and visual impairment among elderly residents in 'homes for the aged'in India. Sci Rep. 2020;10(1):1-8.