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ASSESSMENT OF PREVALENCE AND FACTORS ASSOCIATED WITH RECURRENT FALL AMONG ELDERLY PATIENTS IN INDIA.

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ABSTRACT Fall is an important cause of morbidity and mortality in elderly. It increases the financial and psychological burden on caregivers. Prevention of recurrent fall is essential to reduce these consequences. Hence in this study the prevalence and the factors associated with recurrent fall in elderly was studied. Patients above 60 years of age diagnosed with injuries due to fall , attending out-patient department or admitted as in-patient, were included in the study. Patients with impaired cognition or not willing to participate in the study were excluded. Patients were subjected to preformed questionnaire about fall episodes, demographic details, health condition and environmental factors. Out of 520 patients,305 patients had single episode of fall and 215 patients had recurrent fall. Demographic factors like age more than 70 years, living without family support(without spouse or children),lesser education level, financial dependence, disease condition of patient like multiple comorbidities, mobility disorder, vision problem and loss of sensation over hand/foot and environmental factors like high stairs, congested,narrow corridor and slippery bathroom were significantly associated with recurrent fall. The study gives us the burden of recurrent falls in society and factors associated with it,which help us to formulate preventive stratergies.

KEYWORDS : caregiver burden, prevention, recurrent fall

INTRODUCTION :

Elderly population is growing rapidly worldwide with similar trend being observed in India too. The elderly population is expected to rise from 8.1% in 2011 to 12% in 2026. [1]With this change in demographic trend, the challenge comes to address the needs of elderly and add quality of life to the years lived by them. Among these challenges, falls are found to be a major problem in the elderly.

Falls are the leading cause of injury among adults over the age of 65, and each year one in three older adults reports having had a fall, according to the Centres for Disease Control and Prevention.[2]Most of the falls caused minor soft tissue injuries, and only 5–10% of the population suffered major problems such as head trauma or fractures . Elderly are more susceptible to falls and related injury because of high prevalence of clinical diseases like osteoporosis and age-related physiological changes like slowed protective reflexes, that make even a relatively mild fall dangerous. In addition, recovery from fall injury is often delayed in older persons, which in turn increases risk of subsequent falls through reconditioning. [3]

Prevention of falls is of major importance because they cause considerable mortality, morbidity, suffering for older people and their families and incur social costs due to hospital and nursing home admissions.[4]By identifying the risk factors and initiating plan of care to address these factors , falls can be prevented. Nonetheless, most of the evidence comes from developed countries. Research on falls in developing countries, where 70% of elderly worldwide live, is still lacking [5]. The present study was done to assess the prevalence of recurrent falls in elderly and the factors associated with it.

MATERIALS AND METHODS:

This is an observational study done in a tertiary care centre for a period of six months from November 2016 to April 2017. Patients above 60 years of age diagnosed with injuries due to fall , attending out-patient department or admitted as in-patient, were included in the study. Patients with impaired cognition or not willing to participate in the study were excluded. Institutional ethical committee approval obtained and informed consent obtained from the patients before commencing the study. Patients were subjected to preformed questionnaire about fall episodes, demographic details, health condition and environmental factors.

Patients were asked to report the number of fall events they experienced within the last 12 months, including the fall episode that caused their current hospitalization or out patient visit. Recurrent falls or multiple falls were defined if the patient suffered two or more episodes of falls during this period.

In this study, we also collected sociodemographic characteristics like age, gender, educational qualification, living arrangements and financial status of the individual. Health characteristics like number of co morbidities, mobility status, vision problem and loss of sensation on hand and/ or foot were collected based on previous medical records and by patients self report. Environmental characteristics like condition of stairs(whether the stair was too high for the patient),corridor (whether the corridor was spacious and airy)

and bathroom (whether the bathroom was dry, clean, and nonslippery)were assessed from details by patient and caregiver.

Data thus collected was tabulated and chi-square test used to evaluate the association of recurrent falls with individual factor. A *p*-value of less than .05 was considered to be statistically significant.

RESULTS:

During the study period, 520 patients who attended OPD for falls or admitted in the ward consequent to fall were included in the study. Out of 520 patients, 305 patients had single episode of fall and 215 patients had recurrent fall. About 65 patients were between 60 to 64 years,90 patients were 65 to 69 years,226 patients were 70 to 74 years,102 patients were 75 to 79 years and 27 patients were above 80 years. Demographic factors like age more than 70 years, living without family support(without spouse or children),lesser education level, financial dependence were significantly associated with recurrent fall as shown in table-1.

Table.1 Demograpic characteristics of recurrent fall

S. NO	FACTOR	CHARACTERISTIC	ONE FALL (n=305)	RECURRENT FALL(n=215)	P VALUE
1	Age	> 70 years	179	186	<.00001
		< 70 years	126	29	
2	Sex	Female	182	118	.276
		Male	123	97	
3	Literacy	Upto middle school or illiterate	208	162	.031
		Above middle school	97	53	
4	Living condition	Without family	118	118	.0006
		With family	187	97	
5	Financial status	Dependent	132	128	.0004
		Independent	173	87	

Disease condition of patient like multiple comorbidities, mobility disorder, vision problem and loss of sensation over hand/foot were significantly associated with recurrent falls as shown in Table 2.

Table.2 Patient disease factors associated with recurrent fall

S. NO	FACTOR	CHARACTERISTIC	ONE FALL (n=305)	RECURRENT FALL(n=215)	P VALUE
1	Comorbidities	3 or more	128	117	.0014
		Less than 3	177	98	
2	Functional status	Dependent	128	138	.0001
		Independent	177	87	
3	Vision problem	Present	136	127	.00049
		Absent	169	88	
4	Loss of hand or/and foot sensation	Present	58	73	.00012
		Absent	247	142	

Environmental factors like high stairs, congested ,narrow corridor and slippery bathroom were significantly associated with recurrent fall as shown in Table 3.

Table.3 Environmental factors associated with recurrent fall

S.NO	FACTOR	CHARACTERISTIC	ONE FALL (n=305)	RECURRENT FALL (n=215)	P VALUE
1	Stairs	High	129	128	.00024
		Normal	176	87	
2	Corridor	Congested and narrow	139	114	.04
		Safe and spacious	166	96	
3	Bathroom	Slippery	128	124	.00001
		Dry and safe	177	86	

DISCUSSION:

Falls are defined as inadvertently coming to rest on the ground, floor, or other lower level, excluding intentional change in position to rest.[6] Falls and recurrent falls are a significant public health issue in elderly people given their health and social consequences.

In this hospital-based study, we found that 41% of older patients suffered from recurrent falls during the last 12 months. This result was higher than a study in the United States (25.0%) [7], comparable to a study in Turkey (45.8%) [8], but lower than a study in the Netherlands (56%) [9]. This diversity is attributable to the differences in study settings and samples. Various studies done in India have found prevalence of falls to range from 14% to 53%.[10]

In India, only 25% of people have health insurance coverage, and medical expenses are predominantly borne out-of-pocket.[11] Fall-related injuries may affect a person's savings, increase the economic burden of caregivers, and contribute to neglect of older adults leading to recurrent fall. Hence recurrent fall was common in financially dependent people as seen in our study.

The rate of recurrent falls was the highest among elderly people with limited functionality or greater disability. Moreover, there might be a bidirectional relationship between disability and recurrent falls. In other words, both of these instances can be causes and also consequences [12]. Thus, regular examination to detect the functional disabilities as well as performing prompt rehabilitation, such as strength and balance training or tailored physical exercises, are deemed important to prevent recurrent falls in older people.

The prevalence of falling was associated with co morbid disease burden. Older adults commonly have more than one chronic disease, and the risk of fall increases with the number of chronic diseases as seen in our study.[13]

The current study also found an association between environmental factors and recurrent falls. Indeed, hazardous environmental conditions increase the susceptibility of elderly people to recurrent falls . For example, prior studies indicated that footpaths with low quality or unsafe walking areas elevated the risk of falls [14,15]. These factors should be considered when designing home-based interventions to prevent falls.

CONCLUSION:

Though the study has some limitation like cross sectional study design and self reported information, we found a significantly high proportion of older patients experiencing recurrent falls and also explored some modifiable personal and environmental factors associated with recurrent falls, which could be used to formulate further programs to prevent the occurrence of falls in this population.

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