

# ORTHOPEDIC INJURIES AMONG ELDERLY PERSONS; FREQUENCY AND ASSESSMENT OF THE RISK FACTORS

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**ABSTRACT... Background:** Pakistan is experiencing a rise in its elderly population leading to increase burden of orthopedic injuries. With meager resources and a poor understanding of elderly health problems; Pakistan faces many challenges in caring for its elderly population. **Objectives:** The objectives of this study were to, "Assess the frequency of orthopedic injuries among elderly persons and the associated risk factors at Sheikh Zayed Medical College/ Hospital Rahim Yar Khan". **Study design and duration:** This was an analytical observational study conducted among the elderly patients above the age of 60 years, admitted in the Orthopedic Department of Sheikh Zayed Medical College/ Hospital Rahim Yar Khan. **Methodology:** The data was collected regarding the frequency, causes and pattern of orthopedic injuries in elderly patients admitted in the Orthopedic Department of Sheikh Zayed Hospital / Medical College Rahim Yar Khan. The data regarding age, sex, education, occupation, geographical origin, and mechanism of injury were obtained by questionnaire. The data was analyzed on SPSS version 16. **Results:** There were total 1589 patients admitted in the Orthopedic Unit during the study period. The elderly persons above the age of 60 years were 291(18.31%). There were 184(63.24%) males and 107(36.76%) females. The average age was 64.52 years in urban residents and 66.34 years in rural residents' patients. Among the frequency of injuries, the femoral neck and inter-trochanter region were most commonly involved. The proportion of injuries in males it was 44.02% and in females it was higher that was 49.53%. The majority (68.29%) of the elderly persons was dependent and was not satisfied with socio-economic condition and status in the family ( $p < 0.000$ ). **Conclusions:** Elderly patients who have experienced trauma are at increased risk of subsequent injury. Interventions to reduce the likelihood of trauma recurrence should focus on those with chronic illnesses and functional impairments.

**Key words:** Elderly Persons, Frequency, Orthopedic injuries

## INTRODUCTION

Due to an excellent work done on health of elderly people by recent medical research, there is prolonging of life in elderly peoples. They are enjoying good health. It has made them capable of living longer period of life in action and earning status<sup>1</sup>. The population of older people is increasing at a rate of 2.6 Percent per year globally, considerably faster than population as a whole which is growing at a rate of 1.1 percent per annum<sup>2</sup>. The elderly population in Pakistan was 7.3 million (5.6 percent of total population) in 1998 which will become to be 26.84 million (11 percent of total population) by 2025. These aging trends led the health of elderly population as an important issue internationally. The health of elderly people is given special attention in developed countries since long but it has also become an important issue in recent years in developing countries<sup>3</sup>. Twenty five percent of all trauma related injuries occur in elderly

persons. In Americans older than 65 years of age, the trauma is the seventh leading case of death<sup>4</sup>. Road traffic accidents frequently result in major disability and elderly persons suffer from more grievous injuries following trauma. They are more likely to develop co-morbid ailments, and severe complications, especially in those over 80 years of age<sup>5</sup>. The healthcare professionals are facing great challenges due to increasing numbers of elderly people admitted in orthopedic units. In elderly person not only the physiology is altered but they are also on multiple drugs suffering from several systematic and metabolic disorders. For the treatment of elderly one has to observe ethical considerations<sup>6</sup>.

A field survey about the living conditions and health status of elderly people in Punjab, province of Pakistan was conducted. This survey revealed that overall conditions of the elderly were worst in Southern Punjab.

There was a great disparity in health status and living conditions among elderly males and females. The women were more helpless and in miserable condition than men. Similarly rural area elders were living in worst condition than urban dwellers. The survey also found that chronic diseases like diabetes, hypertension, malnutrition and orthopedic problems were common in elderly persons<sup>7</sup>.

### RISK FACTORS

Elderly persons are commonly injured from low-energy trauma and household injuries. The elderly people became physically frailer and cannot face the social and economical discrimination. The aging process leads to auditory and visual deficiencies along with decreased mental activity. In Islam, the elderly peoples are paid highly prestigious place and his followers are given utmost award for these services paid to the elderly. The physical and mental stresses deteriorate their general conditions<sup>8</sup>. Disobedient persons to the elderly are punished badly by Almighty Allah Taala. However, services to the elderly people paid by spouses, adult children and other relatives are a way of satisfying and gratifying their soul. The demands of elderly people increase as their condition deteriorate and this became extremely painfully for care givers.

Multiple physical and mental health problems arise for caregivers due to stressful behavior of elderly people. The older people are burnt and beaten by many unbeliever care givers owing to an inhuman manner. Thousands of senior citizens are being harmed across the United States by caregivers in some extensive way from people who were directly responsible for their care<sup>9</sup>. There is increased risk of recurrent injury to the older patients who are aged greater than 70 years and frail. Residential, physical and economical factor are potential contributors for recurrent traumatic injuries to these elderly people<sup>10</sup>.

There are higher rates of falls and fall injuries in advanced age. Falls and household injuries commonly lead to fractures at a higher rate as age advances. The auditory, visual and cognitive disabilities affect the general health and orientation about the ups and downs of places. There is a key role of Gender as women fall

more often than men and sustain more injuries when they fall.

The falls result from a complex interaction of risk factors and, as the number of risk factors increases, there is higher risk of falling and of being injured. There are several risk factors among which biological, medical, behavioral, environmental, and socio-economic risk factors interact and produce serious results<sup>11</sup>. It was a dire need of the time to find out the frequency of elderly persons exposed to traumatic and orthopedic injuries. No base line data is available about the evaluation of these facts. The aims of this study were to find out the frequency, associated risk factors and pattern of musculoskeletal injuries in the elderly persons in Rahim Yar Khan, Pakistan. Keeping in view of these objectives, this study was conducted in the Orthopedic Department of Sheikh Zayed Medical College/ Hospital Rahim Yar Khan.

### METHODOLOGY

This study was conducted among the elderly patients at the Orthopedic Department of Sheikh Zayed Medical College/ Hospital Rahim Yar Khan. The patients above the age of 60 years admitted during the study period from January 2010 to December 2010 were included in the study. The patients were included irrespective to the gender and site of injury. The data of all admitted patients regarding age, sex, education, occupation, geographical origin, and mechanism of injury were obtained by questionnaire. The data regarding the causes and pattern of orthopedic injuries were collected only about the elderly patients admitted in the Orthopedics Department of Sheikh Zayed Hospital / Medical College Rahim Yar Khan. The data was analyzed on SPSS version 16.

### RESULTS

There were total 1589 patients admitted for surgery during the study period from January to December 2010. The average age was 64.52 years in urban residents and 66.34 years in rural residents' patients. The majorities (68.29%) of the elderly persons were dependent and were not satisfied with socio-economic condition and status in the family ( $p < 0.000$ ). There were 53.47% elderly who were enjoying good health and active daily

Table-I. Age pattern					
Age in years	Male	%age	Female	%age	Total
61-65	97	33.33	63	21.64	160 (54.98%)
66-70	76	26.12	39	13.40	115 (39.53%)
>71	11	3.78	05	1.72	16 (5.49%)
Total	184	63.24	107	36.76	291

life (ADL). The elderly persons above the age of 60 years were 291(18.31%). There were 184(63.24%) males and 107(36.76%) females. Among these, the elderly persons up to the age of 65 years were 160(54.98%), up to the age of 70 years were 115(39.53%) and there were 16(5.49%) above the age of 71 years. Among the associated diseases 11.43% were suffering from diabetes and 9.58% were suffering from hypertension. Regarding suffering from HBV, there were 9 patients among males and 19 among females. Among males there were 48 victims of HCV and 21 among females, while 7 were suffering from both HBV and HCV.

While about the traumatic injuries, the most common injuries in the elderly were found in lower limb. The injuries at femoral neck and inter-trochanter region, in males it was 44.02% and in females it was higher that was 49.53%. The hip joint injuries in males were 13.04% and in females it was less 7.47%. In upper arm including fore arm, hands and wrist, it was 17.92% in males. The frequency of upper limb injuries was 32.70% in females. Injuries frequency in the leg and foot were 25.02% in males and 14.97% in females.

About the assessment of causes of and risk factors of injuries, it was fall in 32.06% of cases in males and it was 47.66% in case of females. The road traffic accidents were the major risk factors and causative agents of injuries. Its percentage in males was 39.67% and in females it was 30.84%. Mechanical traumas were also common risk factors of injuries. Its proportion was higher in males (22.28%) than females (15.88%). The other risk factor that was very much prominent was diabetes, hypertension and other metabolic disorders.

Table-II. Body parts involved					
Body parts	Male	%age	Female	%age	Total
Shoulder joint	11	5.97	05	4.67	16
Upper arm	06	3.26	06	5.60	13
Fore arm	09	4.89	09	8.41	18
Hand and wrist	07	3.80	12	11.21	21
Hip joint	24	13.04	08	7.47	27
Femur neck and trochanter	81	44.02	53	49.57	134
Leg	29	15.76	08	7.47	38
Foot	17	9.26	06	5.60	24
Total	184	100	107	100	291

Table-III. Risk factors of injuries					
Mechanism of injury	Male	%age	Female	%age	Total
History of fall	59	32.06	51	47.66	130
RTA	73	39.67	33	30.84	86
Mechanical injury	41	22.28	17	15.88	58
Miscellaneous	11	5.99	06	5.60	17
Total	184	100	107	36.76	291

**DISCUSSION**

The proportion of older persons in the world has been rising steadily. Underdeveloped nations are aging faster; Asia in particular is facing accelerated aging. It is estimated that by 2040, the number of people in Asia aged above 60 years will surpass number of children<sup>12</sup>. Pakistan being a developing country is currently facing demographic transition and increasing life expectancy<sup>13</sup>. In our study the average age was 64.52 years in urban residents and 66.34 years in rural residents' patients. Results from a survey done in the peri-urban communities of Karachi, showed the average age of peri-

urban respondents was 66 and urban was 69 years<sup>14</sup>. Our study revealed the facts that the majority (68.29%) of the elderly persons were dependent and were not satisfied with socio-economic condition and status in the family ( $p < 0.000$ ). Such types of findings were also found in a Field Survey conducted about the Living Conditions and Health Status of the Elderly living in Punjab of Pakistan. It was found that the majorities of the elderly were not employed and had no independent source of income<sup>15</sup>.

In our study it was found that among the injured, there were 184(63.24%) males and 107(36.76%) females. This major difference in proportion was due to that males have a higher exposure to the risk of traffic injuries. Because in countries like Pakistan, women's mobility is traditionally restricted, men spend substantially more time in moving vehicles than women. Men are also more likely to be employed as drivers and mechanics in cars and trucks, including drivers of long haul vehicles which may mean spending several days and nights in the vehicle<sup>16</sup>.

The males are more prone to injuries had also been proved in another study, where out of 75 patients, male patients were effected more partly because they had to work and travel more exposing them to trauma and mechanical stress of life. Out of 75 patients, 57 (76%) were male and 18 (24%) were female patients<sup>17</sup>. Among the associated diseases 11.43% were suffering from diabetes and 9.58% were suffering from hypertension. Patients with diabetes are at increased risk of developing multiple complications making their feet susceptible to damage. The triad of neuropathy, ischemia and infection interact to cause tissue damage which if neglected leads to amputation. Several investigations have emphasized hypertension and diabetes as major public health problems in developing nations<sup>18,19</sup> but few have focused exclusively on the elderly population.

Suffering from HBV, there were 9 patients among males and 19 among females. The victims of HCV 48 were among males and 21 among females, while 7 were suffering from both HBV and HCV. In a study it has been described the sequence of the disease in the elderly. According to this study many older individuals over 65 yrs of age may not be getting tested for hepatitis C antibody

until they present with more advanced hepatitis disease<sup>20</sup>.

Most of the older adults with chronic hepatitis C virus infection have acquired the disease earlier in life. These patients often present with complications of liver disease, mainly cirrhosis and hepatocellular carcinoma (HCC)<sup>21,22</sup>. While about the traumatic injuries, the most common injuries in the elders were found in lower limb. The injuries at femoral neck and inter-trochanter region, in males it was 44.02% and in females it was higher, that was 49.53%. The hip joint injuries in males were 13.04% and in females it was less 7.47%. In upper arm including fore arm, hands and wrist, it was 17.92%. The frequency of upper limb injury was 32.70% in females. Injuries frequency in the leg and foot were 25.02% in males and 14.97%. In elderly especially in women the most traumas occurs due to low bone density<sup>23</sup>.

About the assessment of causes of and risk factors of injuries, it was fall in 32.06% of cases in males and it was 47.66% in case of females. Among males road traffic accidents were the major risk factors and causative agents of injuries. Its percentage in males was 39.67% and in females it was 30.84%. Mechanical injuries were also common risk factors of injuries. Its proportion was higher in males (22.28%) than females (15.88%). The other risk factor that was very much prominent was diabetic injuries and other metabolic disorders. In another study the mechanism of injury included falls (64%), motor vehicle collision (27%), injury from machinery (3%), injury from natural and environmental causes (2%), suicide or self-inflicted injury (3%) and burns (1%). The mean length of stay was 14.6 days<sup>24</sup>. Falls accounted for the most frequent mode of injury (MOI), followed by motor vehicle collisions. The most common injury in the falls group was subdural hematoma, whereas fractures were the most common injuries in the motor vehicle collision group<sup>25</sup>. Mechanisms of injury included falls, motor vehicle crashes (MVCs), pedestrians hit by automobiles, and miscellaneous causes. The incidence of elderly pedestrians hit by automobiles in Hawaii is higher than previously reported<sup>26</sup>.

## CONCLUSIONS

It has been found that the numbers of elderly patients are increasing day by day. They are the more vulnerable group who got sever injuries during road side accidents. They are more prone to orthopedic injuries. As the person s became older, they are progressively deprived from active earning and they became more dependent on their offspring and family. The young generation of the developing countries like Pakistan is the major victim of unemployment. This lack of earning resources creates lot of economic and social problems for serving the elderly. The elderly persons keeping lower priority had to face nutritional deficiencies. These nutritional deficiencies and hormonal imbalance leads to osteoporosis. Due to these predisposing factors the orthopedic injuries are more common among the elderly persons which making handicap and disabled. There is need for more research in this field for finding out the geriatric health problems in our country. Pakistan needs Elderly Friendly Policies. Pakistan needs to generate hard core data on changing demographic environment to devise appropriate strategies for the welfare of the elderly.

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**ADMIRATION IS THE DAUGHTER  
OF IGNORANCE.**

**BENJAMIN FRANKLIN**