ELDERLY VICTIMS DYING OF UNNATURAL CAUSES: A RETROSPECTIVE DESCRIPTIVE STUDY FROM RAGAMA, SRI LANKA

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ABSTRACT

Even though life expectancy among the elderly has been improving health hazards due to unnatural causes are a significant medical and social issue among this group.

The objective was to determine the causes and epidemiological aspects of unnatural deaths in the elderly.

A retrospective descriptive study conducted for a period of 3 years, at a tertiary care hospital of Sri Lanka where information was collected from hospital records and post mortem reports of persons above 60 years of age, who died due to unnatural causes revealed that a majority of deaths were due to road traffic accidents of pedestrians.

Key words:
Unnatural Deaths, Elderly, Road Accidents, Suicides, Homicides.

INTRODUCTION

Although ageing is a dynamic biological process beyond human control, defining old age has been widely debated because it is related to the functional ability of the workforce, which can vary with a country's political and economic situation. Many countries define old age as the retirement age i.e. 60 or 65 years. World Health Organization in its working definition defines old age as above 60 years. According to the Department of Census and Statistics of Sri Lanka, there are 2.5.million people, or 12.5% of the total population above the age of 60 in Sri Lanka. It is estimated that Sri Lanka will have an elderly population of about 3.6 million by 2021, which is 16.7% of the total population.[1] Elderly or old age includes ages reaching or exceeding the average life span of human beings. It is expected that the country is going to face many challenges due to this rapidly increasing ageing population. While frequently observed natural illnesses associated with old age such as Alzheimer's disease, cardiovascular diseases, cancer, arthritic conditions and osteoporosis and physical disabilities are expected to rise and pose a significant burden on the health budget, there are many unnatural conditions causing ill-health among these individuals. These unnatural conditions causing ill health in the elderly do consume a disproportionate quantum of medical resources due to physiological changes associated with ageing. Even low energy trauma can be lethal among the elderly due to preexisting medical conditions, age associated diminished respiratory and cardiovascular reserve/functions and insufficient ability for systemic compensation.[2,3,4]

Every year, over a million and a half people worldwide die from preventable unnatural causes or acts of violence, that include 800 000 suicides, 50 000 homicides and 300 000 war deaths.[5] On the other hand, when deaths occur due to unnatural reasons i.e. External causes such as injury/trauma or poisoning etc., and where the manner/ circumstance could be homicidal, suicidal or accidental, there is an immeasurable impact on the society, and the lives of the survivors are often changed irrevocably by these tragedies.[6,7,8,9] This is especially true for the young. However, when the victim is old and friable the public interest in such deaths may not be the same as that for the young. On the other hand, due to the serious, chronic illnesses suffered by these victims, attending physicians are often happy to sign death certificates without personally investigating the circumstances. Thus, unnatural deaths of the elderly are significantly underreported.[10] On the other hand, the forensic pathologist may face a challenge in assisting to investigate the circumstances of death in elderly due to many natural conditions contributing to the death of these victims.

OBJECTIVES

To determine the epidemiological aspects, causes, mechanisms of injury and the contribution of natural co-morbidities in unnatural deaths in the elderly.

METHODOLOGY

Data were collected retrospectively for a period of 3 years, from hospital records and post mortem reports of a tertiary care hospital of Sri Lanka regarding persons above 60 years of age, who died due to unnatural causes. The historical details, scene findings, autopsy findings, investigations, opinion and conclusions given were obtained. Cases where data was incomplete or doubtful were excluded from the study.

RESULTS

Table 1: Age distribution

Fifty five (59.8%) were male and 37 (40.2%) female. Majority 24 (26%) were of the age group of 65 - 69 followed by 70 - 74 (23%). The frequency of deaths due to unnatural causes were less among persons over 75 years of age. (Table 1).

Age group (Yrs.)	Number	Percentage
60 - 64	20	22
65 - 69	24	26
70 - 74	21	23
75 - 79	14	15
>80	13	14
Total	92	100

Table 2: Circumstances of death

Majority of deaths were accidental 63 (68%) followed by suicidal 21 (23%) (Table:2)

Circumstances	Number	%
Accident	63	69
Suicide	21	23
Homicide	5	5
No data	3	3
Total	92	100

Table 3: Management details

While a majority 43 (47%) of victims had received initial treatment at the Emergency Treatment Unit (ETU) or the surgical ward, 41 (45%) were brought dead to the hospital (Table:3).

Received treatment	Number	%
Emergency care only	1	1
ETU/Ward	43	47
Specialized care/surgery/ICU	3	3
Brought dead to hospital	41	45
No data	4	4
Total	92	100

Table 4: Location of injuries

Injuries were located in multiple body parts in 31 (34%) or on the head and neck in a majority 26(28%). (Table:4).

Location of injuries	Number	%
Head, face and neck	26	28
Chest and abdomen	5	5
Multiple body parts	31	34
No external injuries	9	10
Chest only	1	1
Abdomen only	1	1
Lower limb	3	3
Head and chest	6	7
Head, chest and abdomen	10	11
Total	92	100

Table 5: Cause of death

Cause of death in a majority of cases 34 (37%) was cranio-cerebral injuries (Table :5).

Cause of death	Number	%
Craniocerebral injury	34	37
Other	2	2
Unascertained	1	1
Snake bites	3	3
No data	1	1
Chest injury	4	4
Abdominal injury	1	1
Multiple injuries	17	19
Neck compression	6	7
Drowning	8	9
Shock and haemorrhage	4	4
Burn	3	3
Poisoning	8	9
Total	92	100

Table 6: Past medical history

There was a history of natural disease in a majority 51 (55%) with many suffering from ischaemic heart disease 34 (37%) (Table :6).

However, natural pathology contributed to death in only 8 (9%).

Presence of a natural disease	Number	%
Hypertension	5	5
Diabetes mellitus and hypertension	3	3
Ischaemic Heart Disease	21	23
HT/DM/IHD	5	54
IHD and HT	8	9
Other	9	10
None	41	45
Total	92	100

Table 7: Type of accidental death

Most accidental deaths were due to road accidents 50 (79.3%) followed by falls from a height 3 (4.8%). (Table: 7)

Type of accidental death	Number	%
Road Accident (RTA)	50	79
Fall from height	3	5
Burns	2	3
Drowning	2	3
Railway accident	1	2
Other (snake bites, etc.)	5	8
Total	63	100

Table 8: Type of suicidal death

A majority of suicides were due to poisoning 8 (38.1%) followed by hanging 6 (28.6%), drowning 4 (19%), rail track trauma 2 (9.5%) and burns 1 (4.8%). (Table: 8)

Type of suicidal death	Number	%
Poisoning	8	38
Hanging	6	29
Drowning	4	19
Burns	1	5
Railway accident	2	10
Total	21	100

Table 9: Victim profile in road accidents

Most of the victims of road accidents 37 (74%) were pedestrians. (Table: 9)

Victims in RTA	Number	%
Pedestrian	37	74
Driver	6	12
Passenger	7	14
Total	50	100

Table 10: Age distribution of different types of accidental deaths

Road accidents were commonly observed among the age group of 65-74 (54 %) while there was no significant age preponderance in other types of accidents. (Table: 10)

Age Type	60- 64	65- 69	70 -74	75 -79	>80	Total
RTA	9	12	15	8	6	50
fall from height	2	0	0	1	0	3
Burns	0	0	1	0	1	2
Drowning	1	1				2
Railway accident	0	1	0	0	0	1
Other	1	1	0	1	2	5
total	13	15	16	10	9	63

Table 11: Age distribution of suicidal deaths

Suicidal deaths were commonly observed in the 60- 64 age group (Table: 11). The reason for suicide was not known by the relatives in a majority.

Age group (yrs.)	Number of suicides	%
60- 64	6	29
65 -69	4	19
70 - 74	4	19
75 -79	4	19
>80	3	14
Total	21	100

DISCUSSION

Elderly victims subjected to trauma or violence have an increased risk of death in relation to their younger counterparts and are more likely to die of medical complications. Study revealed that the sex ratio of unnatural deaths of elderly follows the national statistics where most of the unnatural deaths are recorded among the males compared to the females.[11] This is shown in studies done in other countries as well.[12] This could be explained by the lifestyle and behavioral risks of men compared to women.

Study revealed that a majority of the victims were less than 75 years old or in an independently mobile age group. Accidental deaths predominate followed by suicides. The same pattern was observed in studies done in other countries.[13,14]

A majority had died on the spot or had lived until they got basic initial management which indicates the seriousness of their injuries. This can be further explained by the presence of multiple injuries or cranio cerebral injuries in a majority. This contrasts with studies worldwide, where it was highlighted that injuries to the extremities are the commonest type of injury in elderly.[15]

Demetriades D et al has revealed that the survival of elderly patients after trauma could be improved with early intensive monitoring, evaluation and resuscitation.[16] Thus, the victims with injuries to the extremities may have survived with resuscitation and may not have been included in the study.

A majority had a past medical history of a significant illness, especially ischaemic heart disease. Elderly patients and in particular those with pre-existing medical conditions are known to be at an increased risk of mortality following injuries of minor to moderate severity.[17] However, the contribution of such natural conditions to the cause of death was identified in only 9%. This further confirms the seriousness of the injuries where injuries themselves were lethal enough to cause death.

Of all accidental deaths, 79% were road accidents where the victims were mainly pedestrians. Similar patterns were observed among the elderly in a study done in neighboring India.[18] National Statistics of Sri Lanka show that there is an increasing trend of road accidents in Sri Lanka. However the majority of victims are drivers or riders, followed by pedestrians, irrespective of age.[12] This pattern among elderly can be explained by the fact that many do not engage in driving and the fact that due to associated medical conditions or disabilities they are more prone to accidents as pedestrians. Falls are the second most common form of accidental death followed by burns and drowning but the number is significantly low. Accidental falls are identified as an important cause of morbidity and mortality in elderly.[19,20] Similarly, the fact that aged patients are vulnerable to burn injury, and have far worse treatment outcomes compared to young adults is generally agreed.[21]

The study showed that there is a significant risk of suicide among the elderly where most (29%) are of the age group of 60 - 64 or just after retirement. A majority had consumed a poison. However, suicide in old age is a much neglected area worldwide due to lack of knowledge among the physicians.[22]

Sri Lanka shows the 4th highest suicide rate in the world[23] and during 2010 to 2012 there was an increasing trend of suicides with age. According to the World Health Organization, in most countries, suicide rates tend to rise as a function of age for both men and women.[24]

Though there is a significant decrease of pesticide poisoning after 1995 in Sri Lanka, even in 2011, it remains the commonest method of suicide, followed by hanging, which was highlighted in our study as well.[25] Elderly people select the easily

accessible modes as methods of suicide, and in most developed countries, with the presence of skyscrapers, falls from a height are much commoner.[26] Our study revealed that there is a significant number of suicidal deaths due to drowning as well. Sri Lanka, being an island with ample resources of water with easy access may make this possible for the elderly.

It is important to study the unnatural circumstances of death among senior citizens of a country to identify the reasons for the untimely, unnatural mortality in order to plan appropriate intervention strategies. Further, this will create awareness among the public of such possibilities, which in turn will give serious concern to the death of the elderly. The study revealed that the majority of these unnatural deaths are due to road accidents, where elderly victims were pedestrians, highlighting the need for supervised transportation. On the other hand, the presence of a significant number of suicides among elderly emphasizes the need for counseling services targeting this group.

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