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Geriatric presentation to the emergency department-spectrum of illness and co-relation with social factors

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ABSTRACT

Background: Increase in the elderly population presenting to Emergency Department is a prime concern as it has maximum implications on the delivery of health care. Older patients account for 12%-24% of all ED patients worldwide. A need for this study is to understand and analyze the current and future of Emergency department (ED) and examines the presentation of geriatric patient to emergency department in our institute in an urban setup of the fastest growing population segment in the city.

Methods: An observational study over a period of one year from 2015 to 2016. All patients aged 60 years and above, visiting the Emergency Medicine. The following data were obtained. (I) Demographics, (II) Urban and Rural population (III) Presence of co-morbidities, (IV) Common conditions (V) Clinical symptoms and Diagnoses, Sociodemographic data collected directly from patient or immediate caregiver.

Results: Total No of patients included during the study were 5489. Data was assessed male patient, predominance was found with 61%, 39% female. The urban population 74.8% was more predominant. Rural being at 25.2%, 1620 (29.2%) poisoning cases,1322 (24.1%) trauma cases,318 (5.8%) cancer cases, 247(4.5%) COPD cases and 230 (4.2%) stroke cases were encountered. Male72.58%, females 27.42%. CCU 58.5% male, 41.55% females. ICU 55.21% males and 44.79 % females. The average time was 3.75 to 4.25.

Conclusions: Road Traffic accidents and poisoning together contributed to many cases. Observation was inadequate training amongst ED doctors and nurses in assessing and managing Trauma patients who lack ATLS protocols in stabilizing geriatric emergencies. Hence ED staff should be well trained to facilitate management of an ageing patients. Hazmat bay should be well organized with specific antidotes to the commonly available poisons. Atypically presentation was common in ED. Considerable overlapping of symptoms were commonly encountered in patients presenting to Emergency department.

Keywords: Elderly, Emergency department, Presentation, Utilization

INTRODUCTION

Across the world, increase in the elderly population presenting to Emergency department is a prime concern as it has maximum implications on the delivery of health care. The age shift contributes to Emergency Department (ED) overcrowding. Older patients account for 12%-24% of all ED patients worldwide. The median age of a country rises due to rising life expectancy. Hence this phenomenon has become evident even in less economically developed countries. The number of persons aged 60 years or more (as per WHO age

classification, and National Policy on Older Persons, Government of India, 1999) is projected to double by the year 2050. In India, the population is projected to increase by 60% between 2000 and 2050. Older patients tend to develop a more severe disease state and have comorbidities leading to longer lengths of stay in the EDs, more resource utilization and higher admission rates to critical care areas.^{2,3} Naturally, it follows that this increase in proportion of the elderly will affect all aspects of life, from Economics to Public Health. In the practice of Emergency Medicine, time and expertise are equally important, and a working knowledge of the type of patients likely to be encountered, could be useful. Our study assesses the presentation of geriatric patients to emergency department in our institute in an urban setup of the fastest growing population segment in the city. Hence the need for this study is to understand and analyze the current and future of Emergency department (ED). This study helps to know the primary reasons for their visits per year, presentation time to emergency, age comparison and sex predominance, socio economic status, and Distribution of case among different department.

International studies have proved that elderly patients have special health care needs in emergency services. ^{4,5} The present ED care should be modified so that we should be able to cope with the geriatric population who have tendencies to get sick more often along with multiple co morbidities. The statistical pattern of elderly visits to Emergency Department, are essential for developing an efficient health care system at community levels. ⁶

METHODS

This study was conducted in Emergency Medicine Department, Victoria hospital, Bangalore Medical college and Research Institute, Bangalore over a period of one year from July 2015 to June 2016. Patients of both sexes aged >60 years presenting to our ED were included for the study. Signed informed consent was obtained for all participants and the study was conducted accordingly. A standardized, multi-dimensional analysis was carried out on all the patients. Results were integrated with information collected from family members or caregivers in case of patients who were incapable of giving the history. The data were collected by means of direct interviews and using standardized evaluation protocols. For all patients, the following information was recorded. Details were based on age (divided into groups: 60-65, 66-70,71-75, 76–80, ≥85 years and so till 100 yrs.) sex, level of education, marital status, occupation, living conditions (whether patient lives with spouse, alone, with other family members, with home caregiver), diagnosis, organ system involved.

A total of 5489 patients were included for the final analysis.

Inclusion criteria

- All patients presenting primarily to emergency room or from outpatient department with a new complication requiring emergency management were included in the study,
- Readmissions after previous visits,
- Patients visiting or shifted from OPD with comorbid diseases.

Exclusion criteria

- Patients declared dead on arrival.
- Patients who leave the ED against medical advice before a full evaluation.

RESULTS

Total number of patients seen during study period: 5522.

Thirty-three cases were excluded for the following reasons

- Declared dead on arrival: 18
- Left from triage without being seen: 10
- Left before full evaluation: 5

Number of patients for final analysis: 5489

Table 1: Distribution of demographic data (n=5489). Demographics-age, gender and race.

| Sex distribution (%) | |
|----------------------------|-------------|
| Male | 3350 (61) |
| Female | 2139 (39) |
| Residence distribution (%) | |
| Rural | 1383 (25.2) |
| Urban | 4106 (74.8) |

Out of 5489 patients, 3350 were males and the rest were females accounting to 2139 cases. 1383 cases were from rural background and 4106 were from urban background. Upon stratification as shown in Table 1, the Male made up 61% and female patient accounted to 39%.

Table 2: Distribution of patients living status (n=5489).

| Living Status | Total (%) |
|---------------------|-------------|
| Spouse | 3976(72.44) |
| Offspring (widowed) | 1253(22.83) |
| I degree relative | 17(0.31) |
| II degree relative | 50(0.92) |
| Others (destitute) | 141(2.57) |
| Alone | 52(0.95) |

The living status of the patients presenting to ED was analyzed and it showed 3976 were spouse dependent, 1253 were offspring dependent, Destitute were 141

patients. Patients dependent on first Degree relatives were 17, Patients dependent on second Degree relatives were 50. Patients who used to live alone were 52 in number.

Table 3: Distribution of occupation of geriatric patients (n=5489).

| Currently working | Total (%) |
|----------------------|------------|
| Yes | 2774(50.6) |
| No | 2715(49.4) |
| Occupation | Total (%) |
| Agriculture | 459(16.5) |
| unskilled labor | 885(31.9) |
| skilled professional | 998(36.0) |
| self-employed | 432(15.6) |
| Total | 2774(100) |

Occupational analysis was assessed, and it showed that 2774 were still working and 2715 were unemployed, skilled professional were about 998, unskilled were about 885, 459 patients were from agriculture background.

Table 4: Distribution in presentation time to ED.

| Time (Hours) | Total (%) | Average time |
|-------------------|------------|--------------|
| Within 1 hour | 379(6.9) | |
| 1 hour- 6 hours | 884(16.1) | |
| 6 hours-12 hours | 428(7.8) | |
| 12 hours-24 hours | 1119(20.4) | 4 Hours |
| 24 hours | 2679(48.8) | |

Presenting time to ED varied from patient to patients but the average time was about 4 hrs. Time calculated was from the onset of acute event or the Accident site to shifting of patients to our Hospital.

Table 5: Distribution of the sexes among different age groups.

| | 60- 65 | 66- 70 | 71- 75 | | 81- 85 | | | |
|--------|-----------|-----------|-----------|-----|-----------|-----|----|----|
| Total | 2323 | 1113 | 843 | 583 | 367 | 173 | 65 | 22 |
| Male | 1361 | 638 | 562 | 389 | 259 | 108 | 33 | 0 |
| Female | 962 | 475 | 281 | 194 | 108 | 65 | 32 | 22 |

Out of the total patients presenting to ER were 1361 males, 962 females. Our oldest patient was 100 years.

Table 6: Distribution of the urban and rural population among different age groups.

| | 60- 65 | 66- 70 | 71- 75 | 76- 80 | | 86- 90 | 91- 95 | 96- 100 |
|-------|-----------|-----------|-----------|-----------|-----|-----------|-----------|------------|
| Total | 2323 | 1113 | 843 | 583 | 367 | 173 | 65 | 22 |
| Urban | 1664 | 897 | 627 | 443 | 237 | 151 | 65 | 22 |
| Rural | 659 | 216 | 216 | 140 | 130 | 22 | 0 | 0 |

1664 patients received to our ED were from the urban background and 659 were from the rural side.

Table 7: Distribution of patients and disposition among the Sexes.

| | Male | Female | Total |
|------------|-------------|------------|-------------|
| | (%) | (%) | (%) |
| Discharged | 465(55.16) | 378(44.84) | 843(15.45) |
| Ward | 1483(61.48) | 929(38.52) | 2412(43.95) |
| HDU | 659(72.58) | 249(27.42) | 908(16.5) |
| CCU | 197(58.45) | 140(41.55) | 337(6.14) |
| ICU | 546(55.21) | 443(44.79) | 989(18) |

Patients were admitted to different departments and under different Intensive care unit (CCU, HDU, ICU). Male patients were more in number who got admitted to wards followed by female patients in intensive care units. High dependence units had different cases like orthopedics, neurology, medical and surgical oncology, psychiatry. Cardiac cases needing intervention was referred to interventional centers. Nepro urology cases were managed by Nephro urology consultants.

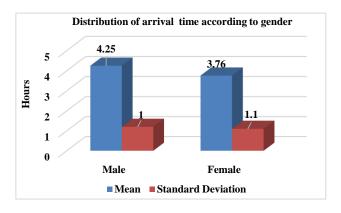


Figure 1: Time to ED among different groups of the study population.

Table 8: Distribution among various admitting departments.

| Department | Ward | HDU | CCU | ICU | Total |
|-------------------|------|-----|-----|-----|-------|
| Medicine | 1272 | 500 | 0 | 861 | 2633 |
| Surgery | 128 | 219 | 0 | 77 | 424 |
| Orthopedics | 232 | 0 | 0 | 0 | 232 |
| Neurology | 398 | 26 | 0 | 91 | 515 |
| Cardiology | 51 | 0 | 411 | 0 | 462 |
| Nephrology | 167 | 167 | 0 | 27 | 361 |
| Chest medicine | 115 | 13 | 0 | 0 | 128 |
| Neurosurgery | 13 | 13 | 0 | 89 | 115 |
| Urology | 115 | 0 | 0 | 0 | 115 |
| Gastroenterology | 64 | 78 | 0 | 13 | 155 |
| Psychiatry | 91 | 0 | 0 | 0 | 91 |
| Medical oncology | 51 | 0 | 0 | 0 | 51 |
| ENT | 64 | 13 | 0 | 0 | 77 |
| Plastic surgery | 0 | 26 | 0 | 0 | 26 |
| Gynecology | 25 | 13 | 0 | 0 | 38 |
| Ophthalmology | 14 | 0 | 0 | 0 | 14 |
| Palliative care | 13 | 0 | 0 | 0 | 13 |
| Vascular surgery | 13 | 0 | 0 | 0 | 13 |
| PMR | 13 | 0 | 0 | 0 | 13 |
| Surgical oncology | 13 | 0 | 0 | 0 | 13 |

The top 20 triage symptoms and ED diagnoses are presented in above Table. 1272 cases were from Medicine followed with 398 Neurology cases, 167 Nephrology cases, 115 urology cases and 115chest medicine cases. Non-specific symptoms such as giddiness, lower limb swelling, and generalized weakness were also common complaints featured prominently amongst the study group symptoms.

Table 9: Showing system-wise distribution of cases.

| System involved | Number | Percentage |
|--------------------------|--------|------------|
| Infectious Diseases | 98 | 1.8 |
| Neoplasm | 120 | 2.2 |
| Endocrine | 38 | 0.7 |
| Hematology | 60 | 1.1 |
| CNS | 285 | 3.8 |
| RS | 658 | 12.0 |
| CVS | 356 | 6.5 |
| GIT | 702 | 12.8 |
| Musculoskeletal disorder | 126 | 2.3 |
| Skin | 98 | 1.8 |
| Poisoning | 1602 | 29.2 |
| RTA | 1322 | 24.1 |
| others | 20 | 0.3 |
| Total | 5489 | 100 |

Table 10: Showing diagnosis-wise distribution of cases.

| Diagnosis | Number | Percentage |
|------------------------|--------|------------|
| Cancer | 318 | 5.8 |
| Ischemic Heart Disease | 241 | 4.4 |
| Stroke | 230 | 4.2 |
| COPD | 247 | 4.5 |
| UTI | 110 | 2.0 |
| Trauma | 1322 | 24.1 |
| Others | 1401 | 25.53 |
| Total | 5489 | 100 |

DISCUSSION

In our study majority of the cases were male accounting to 61% and from urban areas accounting to 74.8%.

In our study patients living with spouse contributed to 72.4% and with relatives were about 23%, but only 0.95% were alone.

Skilled professionals constituted to 36% of all the cases followed 2^{nd} by unskilled labor accounting to 31.9% of all the total cases.

Among the age group, majority of the case were from 60-65 years. Commonest cases coming to our ED on the study were poisoning cases a contributing to 29.2% of cases and RTA accounting to 24.1% others included GIT (12.8%), CVS (96.5%) RS (12.0%) symptoms wise. In the study conducted by JA Henry et al the commonest

cases were due to injuries and poisoning accounting to 26.2% followed by GIT (15.6%) RS (11.1%) and CVS (4.6%).

Diagnosis were poisoning, and trauma together constituted to 54% of all cases, cancer accounted to 5.8%, IHD accounting to 4.4%, COPD accounting to 4.5%. Jin-An Huang et al conducted a similar study in which he found that trauma and poisoning together were the most common causes of admission in ED followed by cancer, IHD and stroke in that order, which co related with that of our study.⁸⁻¹⁰

CONCLUSION

Road Traffic accidents and poisoning together contributed to many cases presenting to our emergency Department. it was observed that there is inadequate training amongst ED doctors and nurses in assessing and managing Trauma patients who lack ATLS protocols in stabilizing geriatric emergencies. Hence, ED staff should be well trained to facilitate management of an ageing patient population and should be aware of their specific requirements. Poisoning cases constituted many patients seen in ED, hence Hazmat bay should be well organized with specific antidotes to the commonly available poisons in the general population of our area. Elderly patients are prone to present atypically in ED. Considerable overlapping of symptoms are commonly encountered in patients presenting to Emergency department.

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institutional ethics committee

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