**Pattern of Admission and Outcome at Accident and Emergency Unit of a Tertiary Institution in South-Eastern Nigeria: a 2-year Retrospective Study**

**Abstract**

***Aim***: To determine the pattern of admission and outcome at accident and emergency unit of Enugu state university teaching hospital.

***Study design***: A retrospective analytical study.

***Place and duration***: Accident and emergency unit, Enugu state university teaching hospital. From January , 2022 to March, 2024.

***Methodology*** : This is a retrospective study involving abstraction of data from patients records at accident and emergency unit of Enugu State University Teaching Hospital between January 2022 and March, 2024. A total of 5062 patients were admitted within the period, and percentages of medical, surgical and gynaecological cases were determined.

***Results***: There were 2856 (56.4%) males and 2206 (43.6%) females with a M:F ratio of 1.3:1. Stroke was the commonest medical case (15%) while trauma from road traffic accident was the commonest surgical case (9%).

58.3% were medical cases, 31% were surgical while obstetrics and gynaecological cases were 1.3%. Unclassified cases were 9.3%. For the patients’ outcome, 57.6% of the cases were admitted to the wards, 40% were discharged from Accident and emergency unit, 27% died while 8% signed against medical advice.

***Conclusion***: Presentation at the accident and emergency units of teaching hospitals in the south-eastern region is high with poor clinical outcomes hence the urgent need for improved care of patients for better outcome.

***Key words***: pattern of admission, outcome, accident /emergency esut hospital.

**Introduction**

 There is documented high rate of mortality and poor outcome of patients’ care in the accident and emergency units of tertiary institutions in sub-saharan Africa. This necessitated the need to have information on the pattern of admission and outcome in accident and emergency unit of Enugu state university teaching hospital, Enugu, south-eastern Nigeria.

**Type of Article**

Original research article

**Objective**

The objective of this study was to ascertain the socio-demographics, aetiological factors, pattern of admission, and outcome of patients who presented to the accident and emergency unit of Enugu state university teaching hospital over a 2-year period.

**Materials and Methods**

This is a retrospective study involving abstraction of data from patients records at accident and emergency unit of Enugu State University Teaching Hospital between January 2022 and March, 2024.

The data obtained were analysed using SPSS version 26.0.

Descriptive statistics which include frequencies and percentages were used to summarise categorical variables. Results were presented in tables and charts.

**Results**

In all 5062 patients were admitted within the period. There were 2856 (56.4%) males and 2206 (43.6%) females with a M:F ratio of 1.3:1

58.3% were medical cases, 31% were surgical while obstetrics and gynaecological cases were 1.3%. Unclassified cases were 9.3%.

The commonest medical case from 2022 to 2023 was stroke (693 cases) which constituted 15% of the cases, while trauma from road traffic accident was the commonest surgical case (9%).

For the patients’ outcome, 57.6% of the cases were admitted to the wards, 40% were discharged from Accident and emergency unit, 27% died while 8% signed against medical advice (SAMA).

Table 1: Patients gender distribution in 2022

|  |  |  |  |
| --- | --- | --- | --- |
| Month | Male | Female | Total |
| January | 121 | 81 | 202 |
| February | 79 | 83 | 162 |
| March | 122 | 93 | 215 |
| April | 102 | 98 | 200 |
| May | 113 | 80 | 193 |
| June | 100 | 85 | 185 |
| July | 97 | 91 | 188 |
| August | 111 | 78 | 189 |
| September | 97 | 95 | 192 |
| October | 110 | 76 | 186 |
| November | 99 | 81 | 180 |
| December | 124 | 92 | 216 |

Fig 1: A bar chart showing Patient’s gender distribution in 2022

Table 2: Number of cases in 2022

|  |  |  |
| --- | --- | --- |
|  |  Case |  |
| Month | Med | Surgery | O&G | No info | Total |
| January | 112 | 50 | 3 | 37 | 202 |
| February | 100 | 59 | 1 | 2 | 162 |
| March | 123 | 58 | 8 | 26 | 215 |
| April | 105 | 70 | 4 | 21 | 200 |
| May | 107 | 73 | 3 | 10 | 193 |
| June | 101 | 51 | 9 | 24 | 185 |
| July | 117 | 55 | 4 | 12 | 188 |
| August | 122 | 54 | 2 | 11 | 189 |
| September | 102 | 54 | 1 | 35 | 192 |
| October | 113 | 62 | 3 | 8 | 186 |
| November | 110 | 66 | 2 | 2 | 180 |
| December | 131 | 78 | 4 | 3 | 216 |
| Total | 1343 | 730 | 44 | 191 | 2308 |

Fig 2: A clustered bar chart showing proportion of cases in 2022

Table 3: Patient’s outcome in 2022

|  |  |  |
| --- | --- | --- |
|  |  Outcome |  |
| Month | Ref out | Ref in | Death‎ | SAMA | Discharged | Admitted to the wards | Total |
| January | 2 | 7 | 19 | 17 | 47 | 110 | 202 |
| February | 4 | 8 | 24 | 12 | 41 | 73 | 162 |
| March | 2 | 5 | 31 | 9 | 30 | 138 | 215 |
| April | 1 | 10 | 15 | 21 | 52 | 101 | 200 |
| May | 2 | 6 | 17 | 10 | 45 | 113 | 193 |
| June | 0 | 13 | 13 | 11 | 42 | 106 | 185 |
| July | 1 | 6 | 13 | 8 | 37 | 123 | 188 |
| August | 0 | 5 | 25 | 11 | 39 | 109 | 189 |
| September | 2 | 10 | 29 | 7 | 39 | 105 | 192 |
| October | 2 | 6 | 13 | 14 | 21 | 130 | 186 |
| November | 1 | 6 | 18 | 10 | 29 | 116 | 180 |
| December | 3 | 9 | 18 | 17 | 31 | 138 | 216 |
| Total | 20 | 91 | 235 | 147 | 453 | 1362 | 2308 |

Fig 3: A clustered bar chart showing patient’s outcome in 2022

Table 4: Patients gender distribution in 2023

|  |  |  |  |
| --- | --- | --- | --- |
| Month | Male | Female | Total |
| January | 100 | 83 | 183 |
| February | 101 | 53 | 154 |
| March | 113 | 58 | 171 |
| April | 97 | 78 | 175 |
| May | 116 | 91 | 207 |
| June | 114 | 75 | 189 |
| July | 100 | 74 | 174 |
| August | 85 | 68 | 153 |
| September | 112 | 92 | 204 |
| October | 129 | 103 | 232 |
| November | 154 | 119 | 273 |
| December | 118 | 90 | 208 |

Fig 4: A bar chart showing Patient’s gender distribution in 2023

Table 5: Number of cases in 2023

|  |  |  |
| --- | --- | --- |
|  |  Case |  |
| Month | Med | Surgery | O&G | No info | Total |
| January | 110 | 63 | 2 | 8 | 183 |
| February | 100 | 33 | 1 | 20 | 154 |
| March | 104 | 64 | 1 | 2 | 171 |
| April | 118 | 54 | 0 | 3 | 175 |
| May | 124 | 80 | 2 | 1 | 207 |
| June | 124 | 53 | 1 | 11 | 189 |
| July | 126 | 40 | 0 | 8 | 174 |
| August | 90 | 62 | 0 | 1 | 153 |
| September | 140 | 52 | 1 | 11 | 204 |
| October | 161 | 69 | 1 | 1 | 232 |
| November | 176 | 86 | 2 | 9 | 273 |
| December | 132 | 69 | 4 | 3 | 208 |
| Total | 1505 | 725 | 15 | 78 | 2323 |

Fig 5: A clustered bar chart showing proportion of cases in 2023

Table 6: Patient’s outcome in 2023

|  |  |  |
| --- | --- | --- |
|  |  Outcome |  |
| Month | Ref out | Ref in | Death‎ | SAMA | Discharged | Admitted to the wards | Total |
| January | 1 | 7 | 25 | 15 | 42 | 93 | 183 |
| February | 0 | 1 | 0 | 11 | 26 | 116 | 154 |
| March | 2 | 10 | 0 | 3 | 31 | 125 | 171 |
| April | 3 | 4 | 15 | 13 | 26 | 114 | 175 |
| May | 2 | 11 | 30 | 14 | 34 | 116 | 207 |
| June | 3 | 11 | 23 | 18 | 0 | 134 | 189 |
| July | 2 | 1 | 23 | 9 | 39 | 100 | 174 |
| August | 0 | 5 | 26 | 14 | 41 | 67 | 153 |
| September | 3 | 8 | 28 | 14 | 32 | 119 | 204 |
| October | 1 | 13 | 35 | 23 | 42 | 118 | 232 |
| November | 4 | 12 | 36 | 24 | 18 | 179 | 273 |
| December | 14 | 13 | 33 | 16 | 41 | 91 | 208 |
| Total | 35 | 96 | 274 | 174 | 372 | 1372 | 2323 |

Fig 6: A clustered bar chart showing patient’s outcome in 2022

Table 7: Patient’s gender, case and outcome in March 2024

|  |  |  |
| --- | --- | --- |
|  | Frequency | Percent |
| ***Gender*** |  |  |
| Male | 242 | 56.1 |
| Female | 189 | 43.9 |
| ***Case*** |  |  |
| Med | 226 | 52.4 |
| Surgery | 128 | 29.7 |
| O&G | 4 | .9 |
| No info | 73 | 16.9 |
| ***Outcome*** |  |  |
| Ref out | 6 | 1.4 |
| Ref in | 24 | 5.6 |
| Death‎ | 51 | 11.8 |
| SAMA | 41 | 9.5 |
| Discharged | 73 | 16.9 |
| Admitted to the wards | 236 | 54.8 |

SAMA-signed against medical advice, Ref in- referred in to Accident & emergency unit, Ref out- referred out from Accident and emergency

Fig 7: Patient’s annual gender distribution from 2022 – March 2024

Fig 8: Patient’s cases from 2022 – March 2024

Fig 9: Patient’s outcome from 2022 – March 2024

Fig 10- Bar graph showing male and female ratio

Fig 11- Bar graph showing year wise variation of surgical outcomes

Fig -12- Bar graph showing year wise variation of discharge outcomes

**Discussion**

There are limited data on the pattern and admission at Accident and Emergency departments of tertiary institutions in Southeast Nigeria. Azeez et al noted that surgical emergencies constituted 43.9% of Accident and emergency unit admissions of which trauma was the major aetiological factor in a study at southwestern Nigeria from 2015 to 2017 with a mortality rate of 5.4%1. Also a study by Onyemaechi et al showed that trauma was the commonest surgical presentation in southestern Nigeria2 The findings in this index study depicted trauma from road traffic accidents as the commonest surgical presentation (9%) while stroke was the commonest medical case (15%).

In a study by Masiira-Mukasa and Ombito in Kenya, trauma from road traffic accidents and violence were the commonest surgical emrgencies3. Another study by Ogendi and Ayisi made similar deductions in another region of Kenya4.

In a study at University of Benin teaching hospital, UBTH, Madubuko et al reported that neurological and infectious diseases were the commonest medical emergency cases that presented at the hospital’s A/E unit over the period of study5, stroke (16.7%) was the prevalent medical condition. The above deductions are in consonance with the findings in our study.

In another study at University College hospital, Ibadan in 2003, surgical cases where predominant with prevalence of 61%, mostly from trauma, male: female ratio was 1.2:16 while in another study in Sri Lanka, chest pain was the most prevalent medical accident and emergency presentation, (34%) while stroke was seen in 11% of cases7. Our index study showed trauma and stroke as the prevalent surgical and surgical cases respectively. This may be attributed to the poor road network leading to road traffic accidents and inadequate blood pressure control complicating into strokes among patients with hypertension in the country8.

Since stroke had the highest prevalence among the medical cases in this study, paucity of adequate antihypertensives especially in rural communities could be a contributing factor9. Addressing this by ensuring adequate provision of affordable antihypertensives even at the primary care level could be of utmost importance in reducing stroke incidence in south-eastern Nigeria10.

The demographics in this study showed that 56.4% of males were admitted to A/E unit while 43.6 % were females. This finding may be related to the demographics in Ekiti State where males were found predominant 11.Men are usually the main source of family income, hence the likely tendency to take care of the main provider on priority12. Similarly, one study conducted in Ogun State University Teaching Hospital, Sagamu, southwest Nigeria revealed that most women tend to be admitted to hospital once complications have set in13. In a study at Lagos university teaching hospital, more females presented to accident and emergency unit than males14.

In this study, an average of 57.6% of the cases were admitted to the wards over the study period, 40% where successfully treated and discharged, 8% signed against medical advice (SAMA) while mortality was 27%. The high mortality might be attributed to delayed presentation at Accident and Emergency unit before adequate resuscitative measures were instituted or paucity of funds and means of transportation to the teaching hospital. Akpa MR et al recorded a mortality of 10.2% with infectious disease being the commonest cases in a study at Portharcourt, Nigeria15.

SAMA or DAMA (discharge against medical advice) was 8% in this study. In a study done at Irrua specialist hospital, 2.2% of DAMA was recorded16 while in a similar Indian study, 5% of the patients had SAMA/DAMA17. This is of concern because it is assumed that these patients are leaving too soon and that adverse consequences will follow. These discharges are also distressing for physicians and other health professionals. Studies have shown that such patients have higher rates of readmission, longer subsequent hospital stays, and worse health outcomes18. Moreover , patients’ characteristics, social factors, morbidity can also prolong hospital stay and worsen outcomes19.

**Conclusion**

Presentation at the accident and emergency units of teaching hospitals in the south-eastern region is high with poor clinical outcomes hence the urgent need for improved care of patients for better outcome.

**Recommendation**

Sensitization of the populace on early hospital presentations and improved services in the accident and emergency units such as improved number of health personnels, provision of more resuscitative equipments, are of utmost importance in improving patients’ outcome at the accident and emergency units. These measures will help in reducing the mortalities in the accident and emergency units in the south-east.

Disclaimer (Artificial intelligence)

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc.) and text-to-image generators have been used during the writing or editing of this manuscript.

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**Competing interests**

There are no competing interests.

**Authors’contribution**

All the authors were involved in the study, also read and approved the final manuscript.

**Ethical approval**

Ethical approval was obtained from the ethics and research committee of the teaching hospital.

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