

Road Traffic Accident in Owerri; a Five Year (2000-2004) Autopsy Study

¹Egejuru RO, ¹Nnadi IG, ²Odesamni WO

¹Department of Pathology Federal Medical Centre, Owerri Imo state.

²Department of Pathology and Forensic Medicine, ObafemiAwolowo University, Ile-ife.

Abstract- Aim: To estimate the demographic, injury pattern and causes of death among road traffic accident victims in Owerri metropolis.

Methodology: Autopsies performed in the Department of Pathology, FMC Owerri was used for the extraction of data which was analyzed with SPSS version16.0

Results: The male to female ratio was 4:1 with mean age of 36.63 ± 16.07 . The age range was 4 to 87 years. The most affected age range was 20-60 years with a peak among the 21-30 years (29.63%) followed by 31-40 (19.26%) and 41-50 years (17.78%) age groups. Head injuries were the commonest type of injuries followed by injuries to the extremities and thorax. The causes of death were as follows: Haemorrhagic shock 75 (55.56%), head injuries 53 (39.26%), septicaemia 4 (2.96%) and exsanguinations 3 (2.22%).

Conclusion: RTA is the most common contributor to the loss of viable labour force in our center and institution and effective implementation of proper traffic and road safety regulations would play vital role to control the menace.

Index Terms- Road, accident, autopsy, Owerri

I. INTRODUCTION

Road traffic accident is a major cause of death worldwide with exceptional impact in the developing countries. World Health Organization (WHO) reports that road traffic injuries (RTI) killed an estimated 1.2 million victims in 1998 worldwide.¹ Deaths from injuries are projected to rise from 5.1 million in 1990 to 8.4 million in 2020 with increase in RTI as a major cause of this rise. Current deaths from RTI account for 2.2% of the global mortality affecting all age groups.² Road traffic accidents (RTA) are continuing to be an occurrence of epidemic proportions both in the developed and developing countries, statistically it is becoming one of the leading causes of mortality and morbidity with 90% of road traffic deaths occurring in low and middle income countries.^{3,4}

African countries appear to be the most affected with average mortality rate of 26.6 per 100,000 compared to 9.3, 16.1, 17.4 per 100,000 in the UK, North America, and South-east Asia respectively.⁵ There are variations among the countries within these regions, for instance, mortality rates in South-east Asia ranges from 3.5 in the Maldives to 36.2 in Thailand and in the American sub-region from 11.0 in North America to 22.2 in the Latin Caribbean per 100,000.⁶ Considering these overwhelming figures, more systematic efforts are needed if the

global target of a 50% reduction in road crash deaths is to be achieved by 2020.⁵

The aim of this study is to estimate the demographic, injury pattern and causes of death among road traffic accident victims in Owerri metropolis and compare our finding to other works done in different parts of Nigeria.

II. METHODOLOGY

Study design: A descriptive cross-sectional study.

Study Area: Owerri, Imo state, Nigeria.

Study population: Owerri consists of three [Local Government Areas](#) including [Owerri Municipal](#), [Owerri North](#) and [Owerri West](#), it has an estimated population of about 401,873 as of 2006⁷ and is approximately 100 square kilometres (40 sq mi) in area. Owerri is bordered by the [Otamiri River](#) to the east and the [Nworie River](#) to the south.⁸

Materials and method: This is a postmortem study of road traffic accident victims in Owerri metropolis of Imo state conducted from 1st Jan, 2000 to 31st December, 2004. These autopsies were conducted in the Pathology department of Federal Medical Centre Owerri and several mortuaries located in Owerri, some of the mortuaries are owned by private hospitals. The postmortem reports were used to extract demographic data and patterns of injuries as well as immediate causes of death. Those victims whose details were incomplete due to autolysis or poor preservation were not included in the study.

Analytical process: These data were analyzed with SPSS version 16.0

Ethical consideration: Ethical clearance for this study was obtained from Research ethics committee Federal Medical Centre Owerri.

III. RESULTS

In the period under review, 135 victims of RTA were autopsied. The male to female ratio was 4:1. The mean age of the victims was 36.63 ± 16.07 years and a range of 4 to 87 years.

The 21-30 years age group (29.63%) was most affected followed by 31-40 (19.26%), 41-50 (17.78%) and 51-60 (12.6%) age groups. This showed that RTA were less common at the very young people below the age of twenty and the elderly were least exposed to RTA. This is shown in table 1.

Skeletal injuries were a significant mode of morbidity and mortality. The commonest bone fractures were recorded in the skull which accounted for 33.01% (69 cases) with variable degrees of cerebral involvement. This was followed by long

bones of the extremities among which fractures of the femur accounted for 16.27% (34 cases), tibia 14.36% (30 cases), fibula and humerus 11.96% (25 cases respectively). The less bones were pelvis 4.3% (9 cases), ulna 2.87% (6 cases), ribs 2.39% (5 cases), vertebrae 1.44% (3 cases), clavicle 0.96% (2 cases) sternum 0.48% (1 case) This is shown in Table 2.

The common sites of injuries were the head and neck region 39.31% (103 cases), the lower limbs 22.51% (59), upper limbs 14.12% (37), thorax 9.16% (24), abdomen 5.73% (15), viscera 5.73% (15) and pelvis 3.44% (9). This is shown in table 3.

The leading causes of death were haemorrhagic shock 75 (55.56%), head injuries 53 (39.26%), septicaemia 4 (2.96%) and exsanguinations 3 (2.22%).

Table 1 shows the number of victims in each age group.

S/N	Age group	Freq.	%
1	1-10	7	5.18
2	11-20	12	8.89
3	21-30	40	29.63
4	31-40	26	19.26
5	41-50	24	17.78
6	51-60	17	12.60
7	61-70	5	3.70
8	71-80	2	1.48
9	81-90	2	1.48
Total		135	100

S/N	PART OF THE BODY	Freq	%
1	Head and neck	103	39.31
2	Chest	24	9.16
3	Abdomen	15	5.73
4	Upper limb	37	14.12
5	Lower limb	59	22.51
6	Pelvis	9	3.44
7	Viscera (internal organs)	15	5.73
Total		262	100

Table 2. Showing the common sites of skeletal injuries.

Table 3: The most common sites of injuries among the victims

Figure 1. Photomicrograph Showing head injury with subarachnoid haemorrhage

S/N	Bone	freq	%
1	Skull	69	33.01
2	Vertebrae	3	1.44
3	Clavicle	2	0.96
4	Ribs	5	2.39
5	Sternum	1	0.48
6	Humerus	25	11.96
7	Ulna	6	2.87
8	Pelvis	9	4.30
9	Femur	34	16.27
10	Tibia	30	14.36
11	Fibula	25	11.96
Total		209	100

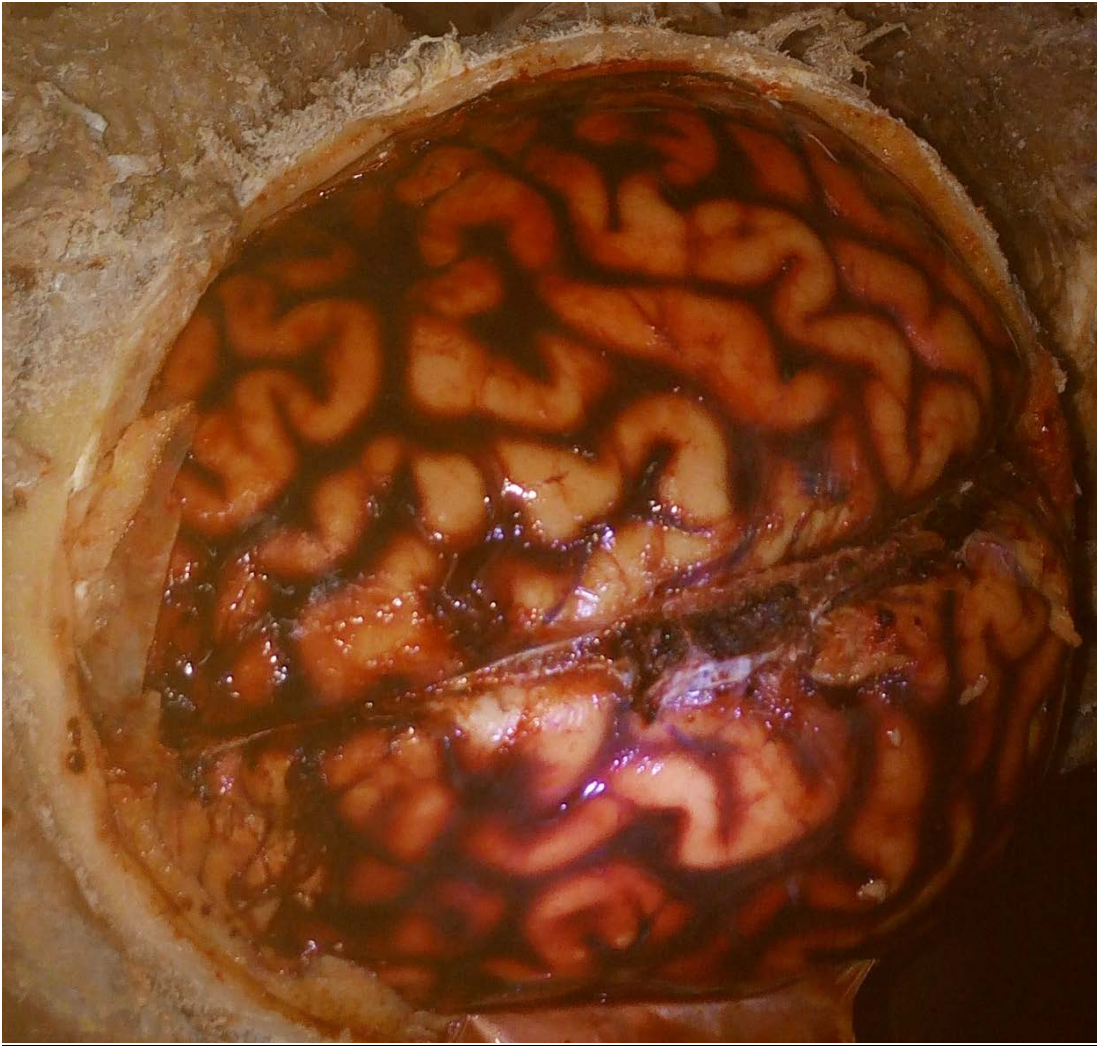
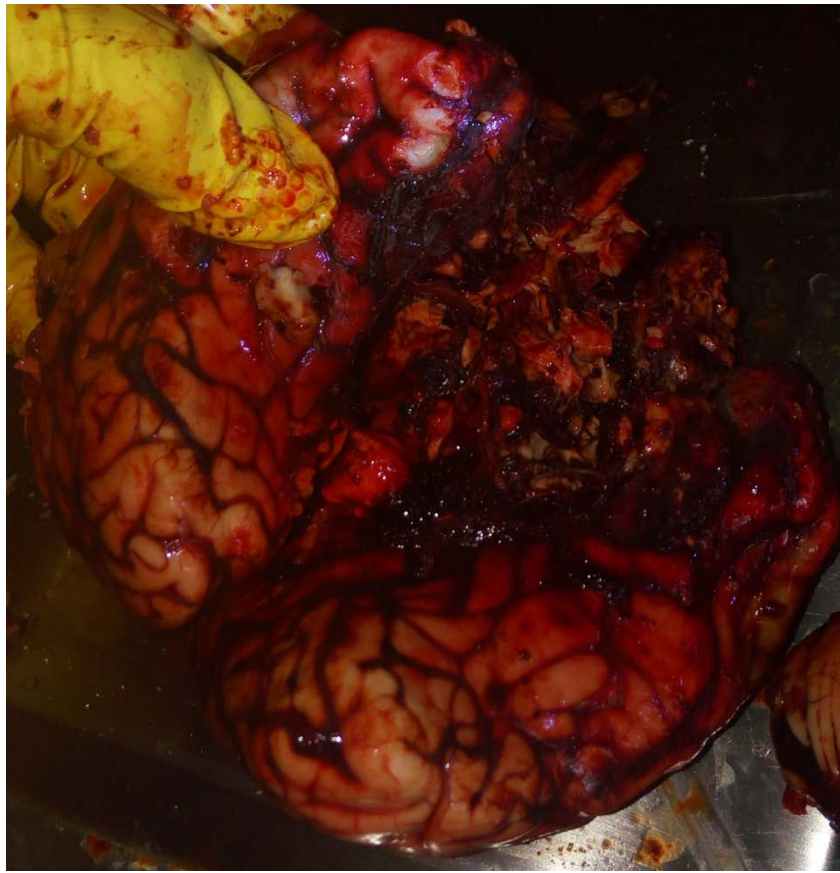


Figure 2. Photomicrograph showing brain subdural haemorrhage.



IV. DISCUSSION

In this study, the male to female ratio of the victims was 4:1 and mean age of was 36.6 ± 16.0 years. Similar findings were reported in Umuahia,⁹ Benin City^{10,11} and Singapore.¹² This shows that males were most affected gender in this study. Obviously, males play critical role in the families as the bread winners as well as the dominant male-driven economy in our society. However, gender ratio from Ilorin,¹³ Guinea¹⁴, Pakistan¹⁵ and Iran¹⁶ were slightly lower than those of our findings with exceptionally high ratios from Saudi Arabia¹⁷ and Bangalore, India¹⁸ where the male to female ratios were 14:1 and 11.5:1 respectively. The skew towards male gender is a reflection of gender inequalities in this part of the world where most socio-cultural and economic responsibilities are shouldered by males. In Saudi Arabia, women are not allowed to take part in the religious, socio-cultural, economic and political activities in the country where most people are Muslims.

We observed that 107 (79.26%) of the victims were aged between 21 and 60 years with peak among the 21-30 years (29.63%) followed by the 31-40 (19.26%) and 41-50 years (17.78%) age groups. Similar findings were reported from Benin City,¹¹ Sagamu,¹⁹ Port-Harcourt,²⁰ Libya,²¹ Pakistan,¹³ Vietnam,²² India,^{23,24} and Jamaica.²⁵ However, the most affected age groups in Guinea¹⁴, China,²⁶ Dhaka, Bangladesh,²⁷ and Argentina,²⁸ were 35-49, 31-48, 31-40, 15-29 respectively. These variations may occur even within the same country. Our findings also showed that 14.81% (20) were children and the most affected age group was the 11-19 age groups. It appears that the mortality rates of the

children in our study was high compared to reports from Jamaica,²⁵ China,²⁶ India²⁹ where children were involved in 11%, 2.8% and 4.9% respectively.

In this study, 5.18% (7 cases) of the RTA victims were elders above the age of 60 years. This finding was lower than the rate of mortality among the elderly (11%) reported in China.²⁶ This reflects the minimal socio-economic expectation on our elders compared to the Chinese and people in developed world.

The external injuries and fractures were observed in the Head and neck region in 103 cases (39.31%), the lower limb in 59 cases (22.51%), upper limb 37 (14.12%), chest 24 (9.16%), pelvis 9 (3.44%), abdomen and viscera 15 (5.73%) respectively. In Iran, [Mohammadi](#) et al.³⁰ reported that head and neck region was involved in 69% of the victims. Similarly in Jammu, India, [Khajuria](#) et al.³¹ reported that limb injuries constituted 31.08% (189) of the total injuries, followed by injuries involving head, thorax, abdomen, pelvis and spine. The further observed that 68.85% of RTA victims had head injuries culminating in skull fractures.

The extremities were the second commonest site of injuries after the head and neck region constituting 36.63% (96), followed by the thorax. This agreed with reports by [Farooqui](#) et al.³² in Maharashtra, India. Our study had very low frequency of abdomino-pelvic injuries (5.73%), however [Ahmad](#) et al.²⁷ reported 77% abdominal injuries affecting the viscera mainly the liver and spleen in Bangladesh.

We observed that the commonest cause of death was haemorrhagic shock 75 (55.56%). This resulted from extensive injuries to soft tissues and bones. This agreed with reports from

India and Fiji.^{33,34} However, Eid et al.³⁵ reported that haemorrhagic shock accounted for about 25% of death among RTA victims in Karnataka, India.

Head injuries constituted 53 (39.26%) of mechanism of death in this study. Most of the head injuries resulted in skull fractures with or without brain parenchymal or intracranial haemorrhage. Similar reports were made from United Arab Emirates,^{36,37} and India.³⁵

Septicaemia accounted for 2.96% (4 cases) of death in this study. This is usually a complication of RTA in cases where secondary bacterial infection of wounds occurs. Similar report was made by Dileep et al.³⁵ in India where 5.9% of RTA victims died following septic shock. Furthermore, exsanguinations were observed in 2.22% (3) of the victims. The major causes of exsanguinations were viscera laceration involving the heart, lungs, decapitation and extensive soft tissue injuries with massive haematoma.

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AUTHORS

First Author – Egejuru RO, Department of Pathology Federal Medical Centre, Owerri Imo state
Second Author – Nnadi IG, Department of Pathology Federal Medical Centre, Owerri Imo state
Third Author – Odesamni WO, Department of Pathology and Forensic Medicine, Obafemi Awolowo University, Ile-ife.

Correspondence Author – Dr Nnadi Ikechukwu.
email:godheniknd@yahoo.com