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The Prevalence of Traumatic Head Injury Seen in a Tertiary Health Facility in North-Central Nigeria

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Abstract

Knowledge about the prevalence of head injury over a time frame could be helpful in understanding the epidemiology of the disease and planning towards managing and preventing further occurrence. *This* study was aimed at identifying the prevalence of head injury in a tertiary health institution between 2010 and 2013. *Findings* revealed that 786 cases of head injury were seen between 2010 and 2013 translating into an average of 197 cases per year. Furthermore it was also found that, 83% of the reported cases involved males. Findings also revealed that one out of every five reported cases resulted in death. Road traffic accident accounted for more than three quarters of all cases seen. *We* concluded that the prevalence of head injury was reasonable and more resources should be budgeted towards the management of head injury to reduce the mortality rate. We recommended that further study should be conducted to assess the quality of Medical and Nursing care provided to these patients.

Keywords

Head Injury, Traumatic Brain Injury, Prevalence, Hospital, Nigeria

1. Introduction

Traumatic brain injury (TBI) is an important public health problem globally that is a frequent cause of death and disability in young people and makes considerable demands on health services (Jennett, 1998). Undertaking preventive strategies requires an understanding of the epidemiology of the disease (Jennett, 1998; Bruns and Hauser, 2003). The economic and health consequences of TBI are substantial (Scholten. Haagsma, Panneman, Beeck, & Polinder, 2014) Hospital stay following brain injury is usually long (Shivaji,Lee, Dougall, McMillan, and Stark,2014) and results in a lot of financial burden on individuals and government. Understanding the extent of the disease in a population, the group mostly affected, and the causes will be helpful in planning interventions towards reducing brain injury (Shivaji et al., 2014).

Prevalence of head injuries managed in hospitals has not been well reported in developing countries. Most of the literatures available are from developed countries. Accidents are the major cause of head injury in developing countries and accident rates are increasing as traffic increases, and they greatly exceed those of developed countries (Jennett, 1998).

In the United States of America, more than 500, 000 adolescents require hospital based care for head injury annually (Ilie, Book, Adlof, Asbridge, & Cusimano, 2013). Overall an estimate of 1.1 million cases of head injury are treated in emergency departments in United States, and 50 000 die. An estimated 43.3% of Americans have residual disability one year after hospitalization with head injury (Corrigan, Selassie, & Orman, 2010). The most recent estimate of the prevalence of US civilian residents living with disability following hospitalization with traumatic brain injury is 3.2 million (Corrigan, Selassie, & Orman, 2010).

In a study conducted in Scotland, it was revealed that more men were hospitalized due to brain injury than women (Shivaji et al., 2014). This can be attributed to the nature of men's work which exposes them to accidents than women. Most head injuries results from falls and the incidence is higher among the very young and oldest group (Shivaji et al 2014). This implies that TBI vary by age, socio-economic

factors, geographic region (Bruns and Hauser, 2003).

Fortune and Wen (1999) in a study conducted in Australia reported a rate of 149 per 100,000. "The highest age-specific rate was for people between ages 15–19 (284 per 100,000) and the second highest rate was for children aged 0–4 (244 per 100,000). The lowest rate was for people between ages 45–64 (69 per 100,000)" this suggests that TBI is common among the youngest group.

According to Hawley Ward, Long, Owen and Magnay, (2002) 280/100000 children are admitted as a result of TBI in the UK. Children under 2 years account for 18.5% of traumatic brain injury due to fall in the UK. Fall account for 60% of traumatic brain injury in under five and road traffic accident was the most common cause of TBI among 10-15 years.

Iranmanesh (2009) reported that male to female ratio of TBI in India was 3:1 and most of the cases reported occurred among the age range of 7-12 years. Furthermore, 72% and 11% of patient admission was due to motor accidents and falls respectively.

In a study conducted in south west, Nigeria, Yusuf (2014) reported that70% of the patients with TBI were young adult males.

This study presents the prevalence of head injury from 2010 to 2013 seen in a tertiary health institution in Jos, Nigeria. This information will help in understanding the epidemiology of head injury in Nigeria.

2. Method

This study was conducted in Jos University Teaching Hospital. Ethical approval was obtained from the hospital Human Research Ethical committee. Record of head injuries admitted from January 2010 to December 2013 were retrieved and analyzed. Confidentiality of information was maintained. Data was collected and analyzed using simple frequency tables and chi-squared.

3. Results

Table 1. *Head injury across gender.*

Year	Male	Female	Total	Chi square	df	P-value
2010	196(84.5%)	36 (15.5%)	232	31.232	3	0.0005
2011	170 (95%)	9 (5%)	179			
2012	136(80.5%)	33 (19.5%)	169			
2013	153(74.3%)	53 (25.7%)	206			
Total	655(83.3%)	131(16.7%)	786			

Table 2 presents the prevalence of head injury by gender. In 2010, 84.5% (196) of head injury patients were male while 15.5% were female. In 2011, 95% (170) of cases were male and 5% (9) were female. For 2012 and 2013, 80.5% (136%) and 74.3% (153) respectively were male while 19.5% (33) and 25.7% (53) respectively were female. Overall, 83.3% (655) cases seen were male while 16.75% (131) were female. The chi-squared analysis reveal that there is a statistically significant difference in the prevalence of head injury between male and female in the period under review (P=0.0005).

Table 2. *Head injuries from 2010-2013.*

Year	Frequency	Number of deaths
2010	232 (29.5%)	42 (18.1%)
2011	179 (22.8%)	24 (13.4%)
2012	169 (21.5%)	29 (17.2%)
2013	206 (26.2%)	40 (19.4%)
Total	786	135 (17.2%)

Table 1 shows that a total of 786 cases of head injury were recorded between 2010 to 2013. Most of these cases (232 representing 29.5%) were reported in 2010. One hundred and seventy nine cases (22.8%) were recorded in 2011, 169 (21.5%) in 2012 and 206 (26.2%) in 2013.Table 1further reveals that 42 deaths (18.1%) were recorded following admission as a result of head injury in 2010; 24 deaths (13.4%) in 2011, 29 deaths (17.2%) in 2012 and 40 deaths (19.4%) in 2013. A total of 135 deaths were recorded as a result of head injury between 2010 and 2013 and this represents 17.2% of all cases between the same periods.

Table 3. *Causes of head injury.*

year	Fall	RTA	Assault	Total	Chi-square	df	Pvalue
2010	15	180	37	232	14.540	6	0.024
2011	5	161	13	179			
2012	14	139	16	169			
2013	16	168	25	206			
Total	50 (6.4%)	648 (82.4%)	91 (11.6%)	786			

Table 3 shows that between 2010 and 2013, 6.4% (50) of head injury seen were as a result of fall, 82.4% (648) as a result of road traffic accident and 11.6% (91) as a result of assault. There was a statistically significant difference in the cause of head injury across the four years (p=0.024).

4. Discussion

The bio data of respondents was not well documented in the record available particularly the ages of clients. The information retrieved here was gender of patients. It was only indicated that they were adults meaning that all patients seen with head injury between the period under review were adults. This makes comparison with some studies which described the prevalence of head injury across various age groups very difficult. Furthermore, the current study reveals that most of the cases that were seen within the period under review involved males (83.3%) with a few women involved (16.7%) (table 1). The ratio of male to female cases was 5:1. This ratio is higher than the 3:1 ratio reported by Iranmanesh, (2009). There was marked difference in the prevalence of head injury among various genders (0.0005). This indicates the fact that men are at greater risk of head injury than women in this community and is consistent with the position of Shivaji et al (2014). Therefore, enlightenment campaigns

should focus more on occupations that are predominantly men.

Seven hundred and eighty six cases were managed within the period under review with an average of 197 cases per year. Cases of head injury recorded decline from 2010 to 2013, however there was a slightly incline by 2013 (table 2). The number of deaths following admission also maintained a similar pattern with prevalence. The highest deaths were reported in 2010 with an overall rate of 17.2%. This translates into an approximate of one death in 5 cases within this period. This merit additional study to assess the quality of care received by patients admitted on account of head injury with a view to improving on the current medical and nursing care.

There was a statistically significant difference in the causes of head injury across the four years (p=0.024). Table 3 reveals that road traffic accident resulted in most of the cases seen in this period. This is pointing to the fact that road safety is still a major public health issue in Nigeria. This is consistent with finding by Hawley et al and Iranmaneshin which road traffic accident was reported as the main cause of head injury among young adults (Hawley et al 2002,Iranmanesh, 2009). This finding also aligns with the position of Jennett (1998) in which accidents were mainly associated with head injury in developing countries and is the major cause of head injury globally. A further study to understand the factors responsible for road traffic accident in Jos and subsequent planning of interventions towards prevention is warranted. Other causes of head injury reported include assault and fall. The finding from current study is inconsistent with Shivaji et al who reported that fall is the major cause of head injury (Shivaji et al 2014).

5. Conclusion

Seven hundred and eighty six cases of head injury were seen between 2010 and 2013 translating into an average of 197 cases per year. About eight in ten cases involved males and one death was recorded in every five cases. Furthermore, road traffic accident accounted for more than three quarters of all cases seen. Assault and fall were responsible for about twenty percent of cases seen within this period.

Recommendations

1. A further study to understand the factors responsible for road traffic accident in Jos and subsequent planning of interventions towards prevention is warranted.
2. The study reported that more males than females were managed with head injury; therefore, interventions focused on the prevention of head injury should be target on males.
3. Further study is warranted to assess the quality of Medical and Nursing care.

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