

Prevalence of Traumatic Brain Injury and its Prognosis among Patients Admitted to Tikur Anbesa Specialized Hospital Emergence Department, Addis Ababa Ethiopia, 2018

Cheru Kore*, Girma Adugna and Yohannes Desta

Department of Public Health and Nursing, Rift Valley University, Addis Ababa, Ethiopia

Abstract

Background; Traumatic brain injury is one in all the foremost devastating kinds of injury, and it leads to varied degrees of paralysis, loss of consciousness, cognitive state and even death. Head trauma accounts for the bulk of trauma deaths. Traumatic brain injury is taken into account a 'silent epidemic, as society is essentially unaware of the magnitude of this drawback.

Objective: To assess the Prevalence of traumatic brain injury/TBI and its prognosis among patients admitted to TASH emergency department, Addis Ababa, Ethiopia, 2018.

Method: Institutional based retrospective, cross sectional study was conducted at TASH, from May 23, 2018 to June 20, 2018, Addis Ababa Ethiopia. Data was recorded on structured check lists through reviewing of patient chart retrospectively. The quantitative data was entered by using SPSS version 20.

Results: A total of 129 records were analyzed. Prevalence of head injury is 27.7%. The gender distribution is 106 males to 23 females, making the male to female ratio 5.6:1. The most commonly affected age group was from 16-29 years old. A total of 47 (36.4%) of the TBI patients came from the urban area. The causes of the TBI were fall down accident in 15.5%, interpersonal violence in 31.7%, and Road Traffic Accident (RTA) in 48%.

Conclusion: The risk factors were the male gender, motorcycle riding, trading, extremes of age and active night and day (afternoon) time period. The incidence rate was much higher than in the developed countries, but could reduce with the use of crash helmets, EMS care, speed limits and safety/protective vehicular devices, with better rehabilitation centers.

Keywords: Injury • Prevalence • Brain • Traumatic

Introduction

Traumatic Brain Injury (TBI) is associate injury that disrupts the normal function of the brain, It will be caused by a bump, blow, or jolt to the top or a penetrating head injury and Explosive blasts can even cause head injury, notably among people who serve within the United States/US military, Although data are limited, estimates from two states indicate that 3.2 million-5.3 million persons within the US live with a head injury-related disability.

Additionally, adolescents and adults affected by moderate or severe head injury who were discharged from rehabilitation facilities were more than twice as likely to die 3.5 years after injury

compared to persons in the general population of similar age, gender, and race, among those adolescents and adults received rehabilitation, 2 in 10 can have died at 5 years post-injury, and nearly 4 in 10 can have declined in function from the level of recovery attained 1-2 years after their injury. The Glasgow Coma Scale has been the foremost wide used clinical TBI severity classification and Most often, a score of 13 to 15 is mild, 9 to 12 is moderate, and <9 is severe TBI [1].

TBI not only considered as morbidity and mortality, however it's a significant reason for epilepsy, the final incidence of TBI in developed countries is usually expressed to be 200/100,000 populations in danger annually and this estimate usually

*Address for Correspondence: Kore C, Department of Public Health and Nursing, Rift Valley University, Addis Ababa, Ethiopia, Tel: 912441527; E-mail: cheru_kore@yahoo.com

Copyright: © 2022 Kore C, et al. This is an open-access article distributed under the terms of the creative commons attribution license which permits unrestricted use, distribution and reproduction in any medium, provided the original author and source are credited. Date of submission:

Date of Submission: 02 August, 2019, Manuscript No. JCRE-19-875; Editor assigned: 07 August, 2019, PreQC No. P-875; Reviewed: 21 August, 2019, QC No. Q-875; Revised: 20 July, 2022, QI No. Q-875; Manuscript No. R-875; Published: 17 August, 2022, DOI: 10.37421/2795-6172.2022.6.168

includes solely TBI patients admitted to hospitals, Medically unattended and Emergency Department (ED)-managed TBIs unnumbered in some studies, leading to underestimate of the frequency of milder TBI, and overestimates the proportion of a lot of severe TBIs. A shift in TBI management from the inpatient to outpatient setting has resulted from increased neuro imaging capabilities and a lot of rigorous hospital admission policies.

TBI has several potential psychological feature, behavioral and psychological consequences, and contributes significantly to the national burden of disease and to current violent behavior, and Few resources are available for the rehabilitation of patients with TBI in South Africa, and access to rehabilitation facilities within the public.

sector is restricted and Consequently, it is the families impacted on by TBI that ultimately carry the care and rehabilitation burden once survivors are discharged from hospital, Families are typically sick equipped to address the complicated and probably long disabilities that accompany brain injury [2].

With an estimated 10 million individuals affected annually by TBI, the burden of mortality and morbidity that this condition imposes on society, makes TBI a pressing public health and medical drawback, Each 21 seconds, one person within the USA sustains a TBI.

Traumatic brain injury could also be common within the homeless population, Exposure to physical abuse throughout childhood that might end in traumatic brain injury could be a best known risk factor for homelessness as an adult, and also substance abuse will increase the risk of homelessness and therefore the risk of traumatic brain injury.

30%-70% of TBI survivors develop depression and TBI survivors conjointly exhibit increased impulsivity, poor decision-making and impulsive-aggressive behavior, such impairments in self-regulatory behaviors will have an effect on interpersonal relationships and contribute to poor community, social and vocational integration, and should lead to long-term placement in an institutional setting.

Statement of the problem

TBI, according to WHO, can surpass several diseases because the major cause of death and disability by the year 2020 and It's been estimated that TBI affects over 10 million individuals annually resulting in either mortality or hospitalization, Available information indicates that nearly 60% of TBIs are because of Road Traffic Injuries (RTIs) in all parts of the world; about 20%-30% are because of falls; 10% because of violence, and another 10% because of combination of labor place and sports connected injuries, Latin America and SSA demonstrate a higher TBI-related incidence rate varied from 150-170 per 100,000 respectively because of RTIs compared to a worldwide rate of 106 per 100,000. The gender ratio ranged significantly from 1.18:1 in South East Finland to 4.81:1 in South Africa, the average age at the time of TBI ranged from 27 to 59.67 years whereas the median age ranged from 29 to 45 years and countries with the incidence of TBI from high to low were New Zealand, US, Spain, Sweden, South Africa, Austria, France, Italy, Germany, Canada, Norway, Australia, Portugal, Finland, China, Iran, Switzerland Page 2 of 7 and Belgium. In 1990 interpersonal violence and MVAs accounted for 10% and 70% of TBI in a sample of South African Adult White males, respectively and these results differed for adult Black males, where interpersonal violence and MVAs

accounted for 51% and 26% of TBI, respectively. Ethiopia is within the early stages of developing pre-hospital, emergency and critical care services [3]. In areas where paramedical services and pre-hospital care were implemented, head injury deaths on admission decreased by 15%; at the scene of the accident by 10% and by 52% throughout transportation, In Ethiopia, pedestrians account for 50% of RTA deaths, compared to 13% within the United States. In the study done in Jimma, the two commonest causes of injury were fighting (38.5%) and RTA (36.5%), Violence has been associated with poverty and substance abuse as well as alcohol, The time needed for a trauma patient to arrive to the health facility for intervention was terribly long (10 hrs-24 hrs). The majority (62.6%) of deaths occurred within 48 hours of admission to the ED [4]. In Ethiopia, since there's very little researches done before those reflect TBI and its prognosis, head injury may be a 'silent epidemic, as society is basically unaware of the magnitude of this problem. Most head injuries occurred in 16-30 yrs old and these age groups are the most productive of the country and there's poor EMS, we have a tendency to have an interest to hold out our study on the prevalence of head injury and its prognosis.

The study rationalized the following issues:

Significance of the study

- The study would add data on understanding the Prevalence of head injury and its prognosis that afflicts individuals of all ages and genders within the country.
- It'll helps involved body for coming up with a way to stop the incidence of TBI and to make sure that people who are injured get the most effective treatment and rehabilitation.
- Additionally, the study can offer final analysis data on Prevalence of head injury and its prognosis.
- The results of this study are utilized by involved bodies for planning, evaluating and strong focus on injury prevention.

Objective of the study

General objective: To assess the Prevalence of Traumatic Brain injury and its prognosis among patients admitted to TASH emergency department, Addis Ababa, Ethiopia, 2018.

Specific objectives: To determine the prevalence of Traumatic brain injury among patients presented to adult ED of TASH.

To assess the outcomes of Traumatic brain injury among patients presented to adult ED of TASH.

Materials and Methods

Study area and period

According to Alex's Medical and Educational Clinic in Africa (AMECA), Tikur Anbessa Specialized Hospital (TASH) is neurosurgical and trauma referral center and the largest general public hospital found in Addis Ababa, the capital city of Ethiopia. The hospital provides a tertiary level referral treatment and diagnosis for approximately 370,000-400,000 patients a year. The hospital has 800 beds, with 169 specialists, 65 non-teaching doctors. It had eight major operating theatre rooms. The Emergency Department treats approximately 80,000

patients per year in a low resourced working environment. Rehabilitation services like nutrition, counseling, walking aids and etc. are provided in TASH. The study period was from May 23, 2018 to June 20, 2018.

Study design

Institutional based retrospective, cross sectional study was conducted to assess the Prevalence of traumatic brain injury and its prognosis among patients admitted to TASH emergency department from January 01, 2018 to April 30, 2018, Addis Ababa, Ethiopia, 2018.

Source population

The source population was all patients presented to adult ED of TASH are the source population for the study.

Study population

The study population was all traumatic brain injury patients presented to adult ED of TASH from January 01, 2018 to April 30, 2018, Addis Ababa, Ethiopia, 2018.

Inclusion and exclusion criteria

Inclusion criteria: All selected TBI records of patients visited adult ED of TASH from January 01, 2018 to April 30, 2018, whose age is above 15 years were included in the study.

Exclusion criteria: Traumatic brain injury patient's charts which are lost from record office due to consultation, transfer or any other medical reason at the time of data collection were excluded.

Traumatic brain injury Patients chart that has inadequate data (greater than 30% incomplete) were excluded. Traumatic brain injury patients whose ages are less than 15 years.

Sample size determination

Sample size was computed based on the formula for single population proportion and the following formula was used to estimate the minimum number of TBI patient charts required for the study which is 142 TBI patients.

Proportion calculation formula:

$$n = \frac{Z^2 \alpha / 2 p (1-p)}{d^2}$$

Whereas;

- n= minimum sample size required for the study
- $Z_{\alpha/2}=1.96$, standardized normal distribution curve value for the 95% confidence interval
- $P=0.263$ $d=0.05$
- degree of margin of error

$$N_1 = \frac{(1.96 \times 1.96) (0.263) (1-0.263)}{0.05^2} (0.05)^2$$

Population correction factor $n_0=298$

N =total number of TBI 252

N_f =sample desired from finite population,

$n_f=n_0$

$$1 + \frac{n_0}{N}$$

$n_f=136$

Then add 5% of $136=6$ $=136+6=142$

Study variables

Dependent variables: Traumatic brain injury

Independent variable: Socio-demographic characteristics

Data collection tools and procedures

A questionnaire was developed in English version. Data was collected in the months of May 23, 2018 to June 20, 2018. Questionnaire was developed for the selected variables based on the review of different literatures. Data was recorded on structured check lists through reviewing of patient chart retrospectively. Data was collected by three clinical nurses in the group after taking six hours training on data collection tools and techniques [5]. Data including the place, circumstance, and the type of injury, time of hospital arrival after injury, severity, and physical examination findings at presentation to the ED was abstracted from medical records.

Data processing and analysis

After data collection, each questionnaire was given a unique code by the principal investigators; it was checked for its completeness and internal consistency. The quantitative data was entered by using SPSS version 20. The data description (gender, age, duration of injuries, treatments, and outcomes) method was using percentages, frequency distributions, tables and graphic representation used.

Quality control

The quality of data was assured by properly designing and pre-testing of the questionnaire, proper training of the data collection procedures, proper categorization and coding of the questionnaire. Every day, questionnaires was reviewed and cross checked with patient chart for completeness by the principal investigators and the necessary feedback was offered to data collectors in the next morning before data collection.

Operational definitions

Head injury: A head injury is any trauma to the scalp, skull, or brain/head.

Concussion: It is a type of head injury to the brain that is not visible in the outside.

Traumatic brain injury/TBI: It is an injury that occurs to inside/outside the normal brain.

Prevalence: The total number of cases of a disease in the given statistical population at a given time.

GCS: GCS is scale used for assessing the status of TBI patient by giving a score up to 15.

Mild head injury: It is an injury to the head like bruise and superficial laceration.

Moderate head injury: It is an injury to head like deep lacerations and fractures.

Severe head injury: Injuries to the head which needs intensive care like intracranial hemorrhage.

Ethical considerations

The Ethical clearance and approval of the proposal was obtained from nursing department and Research and community services of RVU. In order to obtain permission to proceed with data collection, the official letter was written to TASH administrations. During patient chart review confidentiality was kept and any patient information was not transferred to any other organ.

Because the study is a demand for partial fulfillment of Bachelor of Science degree in nursing, the proposal was presented to the nursing department of Rift Valley University, advisors, examiners, and medical school library. So it is often used as a supply of knowledge for possible planning and implementation of health intervention.

Additionally, information's are going to be provided as necessary to alternative relevant bodies.

Results

Socio-demographic data

This retrospective institutional based study was done at Tikur Anbesa Specialized hospital which is found in Addis Ababa. From total of 465 trauma patients visited adult emergency of TASH from January 01, 2018 to April 30, 2018, there were around 180 TBI patients and 129 TBI patients included in this study. The remains are excluded by the study exclusion criteria.

Among these 129 TBI patients, 106 (82%) were males and 23 (17.8%) were females. The mean age in years was 30.6. The prevalence rate of TBI is 27.7%. From the total number of TBI patients 82 (63.5%) were from rural area and the remaining 47 (36.4%) patients were from urban area.

Educational background of most of them 41 (31.7%) were secondary school whereas primary school constituted 33 (25.5%). Regarding to marital status 54 (41.8%) were single, and 25 (19.3%) were widowed.

Concerning their occupation 38(29.4%) are daily laborers and 12 (9.3%) are house wife. The next majorities are merchants by making 23(17.8%) and 21 (16.2%) in numbers are farmers.

Duration of presentation to ED

Regarding duration of presentation after TBI to ED of TASH the majority of patients 69 (53.4%) presented within the first 30-60 minutes' duration, 37(28.6%) within 1-3:30 hours and 23 (17.8%) of TBI patients within 4-6 hours duration.

Mechanism of TBI

Regarding mechanism of traumatic brain injury, most of the patients were sustained TBI from RTA comprising 62 (48%) of which 21 (33.8%) were mild, 28 (45.1%) were moderate, and 13 (20.9%) were severe TBI followed by interpersonal violence comprising 41 (31.7%) of which 17 (40.4%) were mild, 16 (38%) were moderate and 9 (21.4%) were severe TBI and fall down comprising 20 (15.5%) of which 15 (75%) were mild, 4 (20%) were moderate and only 1 (5%) was severe TBI and Others mechanism accounts for TBI were 6 (8.5%) patients i.e. sports related.

Means of transportation to ED

According to the results of this study the main means of transportation during times of TBI, the injured patient comes to ED, by taxi 76 (58.9%) while the least means of transportation used by the ambulance 32 (24.8%) and others are unknown by which they come to ED.

Pre-hospital care

Out of the total TBI patients, 16 (50%) patients got pre hospital care and the remaining patients were not get any type of pre hospital care. From those who got pre hospital care, the type of care given were antipain for 4 (25%) patients followed by bleeding stop for 9 (56%) and 3 (18.7%) fluid is administered for TBI patients. administration of oxygen is unknown at all (Figure 1).

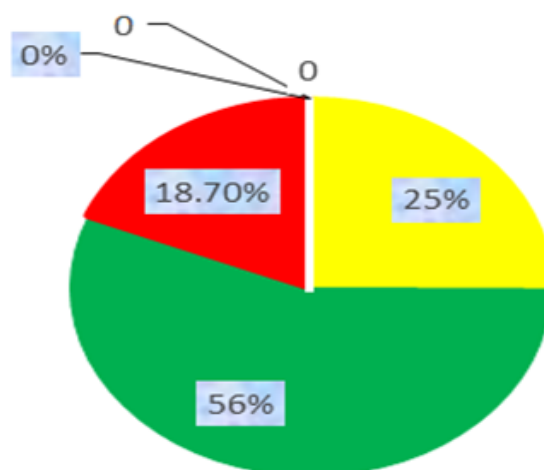


Figure 1: Type of pre hospital care given for TBI patients among patients admitted to adult ED of TASH from January 01, 2018 to April 30, 2018. Note: ■ Anti-pain, ■ Stop bleeding, ■ Oxygen.

Associative injury

Regarding associated injury with TBI, 36 (27.9%) have skull fracture and 93 (72%) have no skull fracture. 9 (6.9%) of patients have neck injury where 120 (93%) no neck injury. 7 (5.4%) of patients were with chest injury while 122 (94.5%) were not. The result of this study also shows that other associated injury with TBI like fractures of extremities, loose of tooth and etc.

Types of intervention given

From the total of TBI patients presented to TASH, 73 (56.5%), 33 (25.5%) and 23 (17.8%) of the patients in our study had non-operative, surgical and medical (secondary injury prevention) intervention respectively.

This study shows that the prevalence of TBI transferred to rehabilitation is unknown overall due to unavailability of data that shows rehabilitation.

Complication of TBI

From the total of TBI patients, 68 (48.8%) were developed complications but due to follow up problems long term complications are unknown. Out of 68 those developed complication, 7 (10.2%) were sepsis developed, 16 (23.5%) were hypoxia, 2 (2.9%) were seizure, and 24 (35.2%) were developed other complications.

Imaging

Regarding diagnostic image, for 53 (41%) of patients imaging was not done. In 37 (28.6%) of patients, only X-ray was done, and for 39 (30.2%) CT scan was done.

Length of hospital stay

The mean duration of hospital stay was 8 days. Patients who stayed for a shorter period had a better outcome when compared with longer hospital stay. Those who stayed for less than 24 hours are 32 (24.8%) and those who stayed for 24 hrs-48 hrs is 24 (18.6%). Both those had a good functional recovery in our study .

TBI occurrence time

Regarding time of TBI occurrence's in this study, 27 (20.9%) was morning (12 am-6:30 am), 43 (33.3%) was afternoon (6:30 pm-12 pm), 33 (25.5%) was at night after 12 pm local times and 26 (20.1%) was unknown due to data is not registered (Figure 2).



Figure 2: Regarding time of TBI occurrence's in this study.

Out of 129 TBI patients, 54 (41.8%) male and 3 (2.3%) females had history of substance use both alcohol and chat. 72 (55.8%) are unknown either using or not using alcohol or chat/other substances.

Out of TBI patients in our study, 7 (5.4%) was Diagnosed previously with psychiatric disorders. Out of those 6 (85.7%) was male and 1 (14.2%) was females. Due to lack of clear and full records total costs for each treatment is unknown.

Outcomes

When we see the outcomes of TBI and treatment, 111 (86%) were discharged improved, 5 (3.8%) left against medical advice, and 13 (10%) died. Of the 13 who died 11 (84.6%) were males. With regard to the specific causes RTA contributed to 63% of the total deaths. Of all the 11 who died, 2 (18%) had moderate and 9 (27.2%) had severe TBI. Aspiration pneumonia and hypoxia was diagnosed in 7 (63.6%) of the 11 (84.6%) patients who died of TBI.

Discussion

The objective of this study is to assess the Prevalence of traumatic brain injury/TBI and its prognosis among patients admitted to TASH emergency department. The study setting was at TASH and the totals of 129 TBI patients were included in the study. According to study conducted in Rural Kenya, 209 patients diagnosed with head injury at Consolata Hospital met the inclusion criteria, of these, 180 men (86.1%) and 29 women (13.9%) and median age was 30 years. This is nearly similar to this study which was done on 129 TBI patients in which males were more affected than females, i.e., male accounts 106 (82.1%) and female accounts 23 (17.8%) with ratio of 5.6:1. This is also similar to the finding of a study conducted in Scotland, it was revealed that more men were hospitalized due to brain injury than women and it is attributed to the nature of men's work which exposes them to accidents than women.

Study conducted in Different country shows that young part of the population was mostly affected by Traumatic Brain injury which are productive age groups and nations of tomorrow. According to 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 lowest rate was for people between ages 45-64 (69 per 100,000).

This is nearly similar to this study in which high age specific incidence rates were found in the age group of 16-29 years which accounts 57 (44.1%) head injury patients followed by 30-43 years which accounts 32 (24.8%) head injury patients which are productive age group and future Nations of the country [6]. This is also similar to the finding of France; the age-specific TBI incidence peaked in those aged 16-25 years is 535 of 100,000.

In this study the least affected age group is age above 58 years which accounts only 19 (14.7%). But studies conducted in Australia shows that lowest rate was for people between ages 45-64 (69 per 100,000).

According to a work done on TBI in South east Nigeria involving a total of 9,444 patients attended the accident and emergency department during the 24 months' study period showed that most common cause of traumatic brain injury was motorcycle accident 300 (58.8%), followed by motor vehicular accident 112 (22%), fall 61 (12%) and assault 37 (7.3%).

In contrast to the above study, in this study which was conducted on 129 TBI patients, the cause of TBI were mostly from RTA which accounts 62 (48%) followed by interpersonal violence which accounts 41 (31.7%), 20 (15.5 %) were from fall down. which is nearly different in study conducted at Ayder Referral Hospital,

Ethiopia, in which Interpersonal violence accounts 24.8% followed by RTA 24.9% and of all injuries, 41.9% were due to falling accidents.

According to study conducted in Rural Kenya, the distribution of head injury severity was mild in 72.5%, moderate in 9%, and severe in 18.5%. This is nearly similar to the finding of this study based on GSC which was conducted on 129 TBI patients, majority of the patients were sustained mild TBI 58 (44.9%), moderate TBI 48 (37.2%) and the remaining 23 (17.8%) were severe TBI [7]. less but nearly different from study conducted in the South African study of adults, 78% of cases were very mild TBI (GCS, 15); 10% mild (GCS, 14 or 13); 8% moderate (GCS, 7-12); and 5% severe (GCS, <6).

In this study, concerning the outcomes at ED, almost all mild TBI patients 111 (86%) with GCS score of 13-15 were improved and discharged from ED with good recovery and 13 (10%) of all severe TBI patients with GCS score of 8 and less were died in ED and 5 (3.8%) were the only TBI patients LAMA, of which 2 (40%) were moderate and 3 (60%) were mild TBI patients. From TBI patients who are died 11 (84.6%) were males. When we come to specific causes of mortality, 63% was due to RTA, 28% due to interpersonal violence and 9% was due to fall down [8,9]. Interpersonal violence is higher in our study when compared to fall down and this result is different in study conducted in Ayder hospital on specific causes. This is nearly similar to the study conducted in Ayder Referral Hospital, the outcomes of injury and treatment, 605 (80.7%) were discharged improved, 62 (8.3%) left against medical advice, and 62 (8.3%) died, of the 62 who died 56 (90%) were males, With regard to the specific causes; 37 (19.8%) out of the 187 RTA had died, 15 of the 313 (4.8%) who sustained fall down accidents had died, and 7 of the 186 (3.8%) interpersonal violence died.

Another study which was conducted in Rural Kenya on 209 patients diagnosed with TBI at Consolata Hospital good functional recovery was achieved by 139 (66.5%) of the patients, whereas moderate and severe disability accounted for 18.2% and 5.3% respectively, while mortality accounted for 10%, so, increasing age, a lower GCS score at admission, papillary abnormalities, a history of loss of consciousness and admission into Intensive Care Unit were all associated with poorer outcomes.

Strength of the study

- Used adopted standardized questionnaires/checklist.
- Full information was given about the objective of the study and agreement was obtained.
- Before the implementation of the study well defined inclusion and exclusion criteria were made.
- Most recent literatures are reviewed.
- Based on our study result lifesaving recommendations was recommended.

Limitations of the study

This report has multiple limitations and weakness. First, the collected data come from hospitalized patients only because the surveillance system of TBI has not been established and more detailed follow-up studies are not available to identify the specific long-term outcomes of TBI.

- Incompleteness of data to have fluent information.
- In addition, this being a retrospective study, we relied on records but there were a few data variables which did not have complete data sets as illustrated by our results.
- Shortage of time to conducted the study.
- Incomplete and unreliable hospital records, poor attitude toward research, and overcrowded and poorly resourced public hospitals.
- Beurecaracy from the institution, not available in working hours and uncooperative.

Conclusion

In conclusion, our study summarizes the following: Traumatic brain injury is taken into account a 'silent epidemic, as society is essentially unaware of the magnitude of this drawback. Economically active individuals are at greater risk of suffering TBI especially men because they had risk taking behavior and due to this it's called Male disease in Africa, so, aggressive goal directed care might make a difference in their outcome. This will hopefully aid in relieving the economic burden that TBI and neurological impairment have on a developing country like Africa especially our country Ethiopia. Current data available on TBI are of low quality, so, establishing a trauma registry would help us have a better summary of events for best decisions and judgment. The major risk factors for TBI are extremes of age, male gender and low socioeconomic status. Patients with TBI are at risk of airway obstruction, aspiration and consequent hypoxia. Therefore, endotracheal intubation at the scene of injury would intuitively seem to be an effective. Systemically, the major causes of secondary brain injury and long term patient outcomes in TBI are the most neglected side.

Recommendations

By taking in to account the results of this study the following recommendations were forwarded:

- We recommend establishment of a standardized surveillance system for TBI and development of a national TBI database to guide creation and implementation of prevention strategies locally.
- Need for better trauma centers and optimally equipped health facilities and trained man powers and its better if patients are directly transported to Neurosurgical centers rather than medical emergency.
- Full enforcement of the legislation which mandate seat belt usage for motor vehicle users and helmets for motorcyclists, construction workers and cyclists.
- TBI is largely preventable, so public awareness and prevention programs targeting the high-risk groups should be made a priority. Such programs may be incorporated into the school educational curriculum to modify risk-taking behavior among the young.
- Regional TBI registration system should be established in the future.

- Rapid Sequence Intubation (RSI) should be practiced by pre-hospital care givers to reduce the risk of aspiration and increased intracranial pressure.
- Ethiopia is one of the four subs Saharan countries together accounting for half the road injury death toll of sub-Saharan Africa, so community awareness and training for drivers about road safety should be mandatory to safe life.
- Maximize pre-hospital care providers with the required tools to practice evidence-based-intervention.
- Establishing rules against dangerous types of contact (spear tackling) in football.
- Installing grab bars in bathrooms and window guards.
- Stakeholders should establish rehabilitation centers.

Acknowledgment

First of all, our greatest, deepest and true gratitude goes to our God. We strongly indebted to our adviser Cheru Kore (BSc, MPH) for his generously contributed his time and effort by provision of unreserved support and comments to prepare this research. Ayale Birahnu, Girum Sebsibe and others also deserve high praise and respect for their valuable supportive, comments and suggestions.

References

1. Jr, Bruns, John and W. Allen Hauser. "The Epidemiology Of Traumatic Brain Injury: A Review ." *Epilepsia* 44 (2003): 2-10.
2. Jan, Webster, Allan Taylor, and Ross Balchin. "Traumatic Brain Injury, the Hidden Pandemic: A Focused Response to Family and Patient Experiences and Needs." *S Afr Med J* 105 (2015): 195-198.

3. Adnan A Hyder, Colleen A Wunderlich, Prasanthi Puvanachandra and G Gururaj, et al. "The Impact of Traumatic Brain Injuries: A Global Perspective." *Neuro Rehabilitation* 22 (2007): 353.
4. Stephen W, Hwang, Angela Colantonio, Shirley Chiu and George Tolomiczenko, et al. "Traumatic Brain Injury in the Homeless Population: A Toronto Study." (2009).
5. Bob, Roozenbeek, Andrew IR Maas, and David K. Menon. "Changing Patterns in the Epidemiology of Traumatic Brain Injury." *Nat Rev Neurol* 9 (2013): 231-236.
6. Min, Li, Zilong Zhao, Gongjie Yu, and Jianning Zhang. "Epidemiology of Traumatic Brain Injury Over the World: A Systematic Review." *Gen Med Open Access* 4 (2016): 275-275.
7. Akira, Badul. "The Prevalence of Traumatic Brain Injury in a South African, Juvenile Delinquent Sample." (2012).
8. Nizamutdinov, Damir, and Lee A. Shapiro. "Overview of Traumatic Brain Injury: An Immunological Context." *Brain sci* 7 (2017).
9. Oyedele A, Emmanuel, Andy Emmanuel, Solomon M Gimba and Rifkatu Lana, et al. "The Prevalence of Traumatic Head Injury Seen in a Tertiary Health Facility in North-Central Nigeria." (2015).

How to cite this article: Kore, Cheru, Girma Adugna and Yohannes Desta. "Prevalence of Traumatic Brain Injury and its Prognosis among Patients Admitted to Tikur Anbesa Specialized Hospital emergence Department, Addis ababa Ethiopia, 2018". *J Clin Res* 6 (2022): 168.