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ORIGINAL ARTICLE

Assessment of Mortality Pattern Based on Autopsy in Victims of Road Traffic Accident

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ABSTRACT

Background: The Trauma and road accident is considered as major cause mortality in the young adults' populations around the world. The understanding the importance of forensic investigation of un-natural deaths, accidental injuries and suicidal cases is required by medical staff and patients' family members.

Objective: To asses of mortality pattern based on autopsy in victims of road traffic accident

Study Design: Retrospective study

Place and Duration of the Study: Medicolegal Section of Liaquat University Hospital Hyderabad, Pakistan from 1st January 2018 to 31st December 2019.

Methodology: Six hundred and twenty nine autopsies were included. Deaths due to road traffic accident were included.

Results: There were 472 males and 157 females between 31 to 50 years. Two hundred and forty nine patients were admitted in ICU. Two hundred and fourteen patients had affected head region followed by face 104 injuries. While 74 had affected neck, 67 affected thorax, 63 affected abdominal region, 52 affected spine and 55 had affected lower extremities.173 were died due to damage of central nervous system. The damages were due to car accident was 62, motorbike 73, rickshaw 22 and other reasons 14. One hundred and forty patients were died due to fracture of skull.

Conclusion: The mortalities rates are under reported in majority of accidental cases due to lacking of autopsies procedures.

Keywords: Autopsy, Assessment, Mortality pattern, Road traffic accident

INTRODUCTION

The Trauma and road accident is considered as a major cause mortality in the young adults' populations around the world.[1] A considerable number of the injuries cases arrives at hospitals and requires the appropriate emergency treatments, assessments and extent of injuries;however, the major autopsies are required in death cases.[2] The initial assessments, surgical procedures, vital signs at conscious and unconscious levels, are usually the parts of analyzing the patients.[3]

The diagnosis devices in the emergency units, medical staff, appropriate management and analysis provides the simultaneously response to severely injured patients.[4] The factors such as complete fastened seat belts, vehicle type, and safety measure has changed the trauma pattern of traffic accidents and injured patients during travelling. Several studies have been conducted on the accidental cases and trauma victims specifically about the patients who lost their lives during accidents or may be death after arrival to hospital.[4,5] The autopsy findings in the fatal injuries and trauma cases with the accurate tool and processing of cases by specific trained staff may improve the quality and accuracy in medical emergency departments.[6]

According to the World Health Organization (WHO) the 90% of the fatalities in the world occurring on the road is the part of low-income countries such as the developing country like Pakistan, knowing the fact that low-income countries have half of the vehicles compared to developed countries.[7] According to a report published in 2009, WHO has estimated that the 25.3 deaths per 100,000,2 occurs as the results of traffic road injuries which is huge number comparatively according to the standard of organization. In the past few decades in Pakistan the efforts are being made to collect the and compare the data of traffic deaths and injuries cases with the mortality rates of other countries at the national level.[8]

The epidemiological assessment is made by collecting the data from the emergency department, surgical unit, intensive care unit (ICU), and more specifically from local police.[9] Additional data can be obtained by performing the autopsies and trying to find out the answers for numbers of questions by the medicolegal staff specified for medical autopsies.[10] Besides the legal investigation involved in the assessment of trauma cases the autopsy also helps in finding the basic logistic of hospital and emergency department such as beds, facilities, ambulance and requirement of staff in an effective post-mortem and autopsies findings.[11]

The understanding the importance of forensic investigation of un-natural deaths, accidental injuries and suicidal cases is required by medical staff and patients'

family members. The exception should only be considered by police rules.[12] The legal procedure involved in the performance of autopsies according to "criminal procedure code of Pakistan". Considering the importance of autopsy in accidental injuries and mortality cases the current study aims to asses of Mortality Pattern based on autopsy in victims of road traffic accident reported at Liaquat University Hospital Hyderabad, Pakistan

MATERIALS AND METHODS

This retrospective study was conducted at Medicolegal Section of LiaquatUniversity Hospital of Hyderabad Sindh, Pakistan from 1st January 2018 to 31st December 2019. A total of 629 autopsies were included in the study based on inclusion criteria i.e. death due to road traffic accident. The demographic details, type of road accident, which part of body was most affected, from hospital admission to death how many days in hospital, severity of accident were recorded. Further, we are using different scales to assess the severity and using one score scale. The first scale is called abbreviated injury scale. This scale is used to assess numerically based on severity. Another scale is also used to assess the severity score called injury severity score i.e. ISS. To assess the severity score, we divided human body in six separate regions i.e. (head and neck, face, chest, abdominal and pelvic contents, extremities and pelvic girdle, and external regions). The data were also analyzed descriptively by using SPSS-25.

RESULTS

There were 472 males and 157 females. Mostly those who were died were belonged from urban locality as compared to rural and 491 from urban and 138 from rural locality (Table 1).

Two hundred and forty nine were admitted in ICU, 174 were admitted in neurosurgery unit, 122 were admitted in orthopaedic unit and 84 were admitted in surgery unit (Table 2).

Two hundred and fourteen patients had affected head region 214 followed by face 104, while 74 had affected neck, 67 affected thorax, 63 affected abdominal region, 52 affected spine and 55 had affected lower extremities (Table 3).

Table 1: Demographic information (n=629)

Variable	No.	%
Gender		
Male	472	75.04
Female	157	24.96
Age (years)		
18-30	216	34.34
31-50	364	57.87
51-70	49	7.79
Locality		
Urban	491	78.06
Rural	138	21.94

Table 2: Frequency of hospital admission(n=629)

Admission type	No.	%
Intensive care Unit	249	39.59
Neurosurgery Unit	174	27.66
Orthopaedic Unit	122	19.40
Surgery Unit	84	13.35

One hundred and seventy three were died due to damage of central nervous system. The damages were due to car accident and the frequency was 62, due to motorbike 73, rickshaw 22 and other reason 14. One hundred and forty patients were died due to fracture of skull. The damages were due to car accident and the frequency was 40, due to motorbike 43, rickshaw 38 and other reason 19. Further 89 were died due to internal bleeding. The bleeding was due to car accident and the frequency was 37, due to motorbike 23, rickshaw 16 and other reason 13 (Table 4).

Table 3: Frequency of affected body region (n=629)

Affected body region	No.	%
Head	214	34.02
Face	104	16.53
Neck	74	11.77
Thorax	67	10.65
Abdominal region	63	10.02
Spine	52	8.27
Lower extremities	55	8.74

Table 4: Frequency of cause of death

Cause of death	Car	Motor bike	Rickshaw	Others	Total
Central nervous system	64	73	22	14	173 (27.5%)
Skull fracture	40	43	38	19	140 (22.26%)
Bleeding internally	37	23	16	13	89 (14.15%)
Haemorrhage in lower extremities	37	31	17	10	95 (15.10%)
Cervical spine injury	29	21	15	8	73 (11.6%)
Airway compromise	24	16	12	7	59 (9.38%)

DISCUSSION

The study attempted to evaluate the mortality cases and reasons behind the trauma injuries and trauma fatalities. In order to obtain the better understanding of data obtained from the trauma cases was compared to past studies.[12,13] In the present study, majority of cases were from male genders comparatively higher cases thanfemale gender similarly reported by the past study.[14] Among all of the different parameters of study, one of the important parameters was to addressed the ages. The data of trauma cases showed that the maximum number of autopsies had age from 31 to 50 years 364 followed by 216 autopsies had age from 18 to 30 years. The more numbers of cases 57.8% reported by the 31-50 years old patients similarly found in the study.[15] The trauma cases reported in the Hyderabad city mostly those who died were residents of from urban locality as compared to rural. The more numbers of cases reported by the urban residents may be due to the reason of more traffic and high numbers of vehicle and transports.[16] During the study the autopsies cases, of total 249 were admitted in intensive care units presenting the critical cases, which is similar to the study representing the crucial cases in majority.[17] One hundred and seventy four patients were admitted in neurosurgery units, showing the brain or skull injuries, majority of study showed in past that accidental and trauma cases experiencing the orthopaedic unit and surgical units are the

122 were admitted in orthopaedic unit and 84 were admitted in surgery unit. Within the study sample we found that the trauma injuries showed different body parts injured in the accidental cases.[18]

The head injuries showed in the majority of cases 34.2% approximately similar results found in a past study conducted on the trauma cases and head injuries. The face damaging in the accidental cases is also commonly seen the past studies, we found the 16.5% cases of face injuries.[19] The damage of neck and thorax part found in some severe cases which was little divergent to the study conducted. The damage of abdominal showed remarkable difference from few studies we found the abdominal injuries of different kind among 10% cases.[20] It is estimated that around 50% of road accidents happens by the youngsters dueto motorbikes[21] and heavy traffic areas which can be died due to damage of central nervous system. The damage was due to car accident and the frequency was 62, due to motorbike 73, rickshaw 22 and other reason 14. Further 140 were died due to fracture of skull.[22] The damage found due to car accident and the less compared to Bike similar to the study. The higher accidents cases were reported possibly due to other factors such un-compliance of traffic rules.[23] The authors from the different countries reported the accidental mortalities 54% the few factors can possibly reduce these events such as the traffic rules, legislation, and police FIR proceedings.[24] The autopsy resistance by the patient's family, fear of autopsy procedures and religious factors can be mange by appropriate guidance of patients and training of medical staff.

CONCLUSION

The autopsy is an important component in the establishment of data regarding the accidental cases, manners of deaths, mortality rates and causes behinds the deaths cases reported to emergency department as accidental cases. The mortalities rates are under reported in majority of accidental cases due to lacking of autopsies procedures. There is a need to establish the standard procedures in all types of accidental cases and road accident cases.

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