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Original article:

Study of pattern of thoracoabdominal injuries: Observational study

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Abstract:

Introduction: A road traffic accident is any injury due to crashes originating from, terminating with or involving a vehicle partially or fully on a public road. It is projected that rod traffic injuries will move up to the third position by the year 2020 among leading cause of the global disease burden. They are considerably economic losses to victims, their families, and to countries as a whole.

Material and methods: The study was conducted in mortuary of forensic medicine and toxicological department of tertiary care center. Victims of road traffic accident brought to the mortuary of forensic medicine and toxicological department of tertiary care center for autopsy/ medico-legal evaluation.

Results: The anatomical area most commonly affected 113(56.5%) was thoracic- abdominal followed by 60 (30%)

Conclusion: A recognition of the typical patterns of injury coupled with a logical sequence for the initial assessment and management of trauma patients will contribute to reductions in mortality and morbidity; however, the most significant impact on reducing the worldwide burden of motor vehicle-related trauma will come from injury prevention programs organized at societal and governmental levels.

Introduction:

A road traffic accident is any injury due to crashes originating from, terminating with or involving a vehicle partially or fully on a public road. It is projected that rod traffic injuries will move up to the third position by the year 2020 among leading cause of the global disease burden. They are considerably economic losses to victims, their families, and to countries as a whole.[1,2]

First automobile accident was occurred in 1896, when a bicycle rider was hit by a car and first fatal accident occurred in London in the year 1899, in same year when pedestrian was killed by a car in New York City. The important factors are human errors, driver fatigue, poor traffic sense, mechanical fault of vehicle, speeding and overtaking violation of traffic rules, poor road conditions, traffic congestion, road encroachment and drunken driving etc.[3]

Accidents are considered as modern day epidemic and counter product of modernization and hasty life. The accident has been defines as “An unexpected unplanned occurrence which may involve injury. “WHO advisory group in 1956 defined accidents as an unpremeditated event resulting in recognizable damage.” ”During 1990s road traffic accident injuries ranked ninth among the leading causes of deaths in world. It is projected to become second leading cause by the year 2020 next to ischemic heart disease. About 3.5 million

people die of unintentional injuries. Road traffic accidents claim 1.2 million lives. In developed countries accidents are shown to be as numerous as in underdeveloped countries. It is increasing rapidly as a cause of death in absolute numbers and in terms of proportions. Accidents represent a major epidemic of non-communicable disease in the present century. They are no longer considered accidental rather they are a part of the price we pay for technological progress. Accidents have their own natural history and follow the same epidemiological pattern as any other disease i.e. the agent, the host and the environment interacting together to produce injury or damage. They occur more frequently in certain age groups, at certain times of day and week and at certain localities.

Material and methods:

The study was conducted in mortuary of forensic medicine and toxicological department of tertiary care center.

The setting was selected on the basis of:

- Availability of the sample
- Feasibility of conducting study
- Geographical proximity

Victims of road traffic accident brought to the mortuary of forensic medicine and toxicological department of tertiary care center for autopsy/ medico-legal evaluation.

Sample and sample size-

The sample consists of 200 autopsy cases.

Sampling technique-

Sampling techniques refers to the process of selecting a portion of the population to represent the entire population.

A purposive sampling technique was adopted for the selection of sample.

Inclusion criteria-

Thoraco-abdominal injuries due to road traffic accidents during study period between September 2016 and September 2018 that are brought to mortuary of tertiary care centre.

Exclusion criteria-

1. Head injury of any cause
2. Cases with injuries sustained over other body parts except thorax and abdomen.
3. Thoraco-abdominal injuries sustained by any other cause other than road traffic accident like railway accident, fall from height, assault.

The data from the autopay form and questionnaire was fed into coded Performa sheets that were entered onto a computer database.

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Results:

The age ranged from zero (0) to more than 70 years with a mean age 35.57 and median age 36 years. Majority of the cases (32%) lie within the economically productive age group 31-40 years.

When the age group were stratified on gender basis, males constituted more in the productive age group (22%) as shown in the table.

The males constituted to the majority of the accidents and the ratio of (n=139) male: female (n=61) was 2.28:1.

TABLE: - 1 INVOLVEMENT OF ANATOMICAL AREA IN VICTIMS OF ROAD TRAFFIC ACCIDENT

ANATOMICAL AREA	FREQUENCY	PERCENTAGE
Thoracic only	60	30%
Abdominal only	27	13.5%
Thoracic-abdominal	113	56.5%
Total	200	100%

The anatomical area most commonly affected 113(56.5%) was thoracic- abdominal followed by 60 (30%) thoracic only.

TABLE:-2 DISTRIBUTION OF INTERNAL THORACIC INJURIES

ORGANS	FREQUENCY	PERCENTAGE
Esophagus	24	12
Pericardium and Heart	100	50
Pleura and Lungs	162	81
Airways	46	23
Diaphragm	3	1.5

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Discussion:

The most commonly involved internal organs in thoracic injuries were pleura and lungs 162 (81%) followed by pericardium and heart 100(50%) and airways 46(23%). The most commonly involved internal organ in abdominal injuries was liver 143 (71.5%) followed by kidney 71 (35.5%). The increase in road transportation has caused an Increase in road traffic accidents especially in South-east Asian countries like India that has serious negative social, economic and health sequel.

RTA cause mechanical trauma, resulting in morbidity, disability and even mortality. The fatality rate in road traffic accident in India is one of the highest in the world and reported to be 20 times more than that reported in developed countries.[5] Every day as many as 140,000 people are injured on the world's roads. More than 3,000 died and some 15,000 were disabled for life. Each of those people has a network of family, friends, neighbors, colleagues or classmates who were also affected, emotionally and otherwise.[6]

The findings of study were based on its objectives and are discussed under the following headings. The common age group involved in this study was 31-40 years (32%) followed by 41-50 years (18%) and 21-30 years (16%). The deceased aged more than 70 years were the least (2%). In similar study conducted by N. Bayapa Reddy at Bangalore.Majority of victims were young adults 21-40 years(50%) followed by 41-60years (30%) and < 20 years (15%) and least above 61 years (5%).

The males constituted to the majority of accidents and the ratio of (n=139) Male: Female (n=61) was 2.28:1. Similar study conducted by B.Sureshkumarshettyet al at KMC Manipalalso observed higher Male: Female ratio. The males were more commonly involved (86% n=147) and male: female ratio being 6:1.The reason of male predominance could probably be due to the social structure of the Indian society as most of the outside work usually carried out by males and tendency of males not following the traffic rules and regulations. Moreover, females have minimal outdoor activities as compared to males.[7]

Conclusion:

A recognition of the typical patterns of injury coupled with a logical sequence for the initial assessment and management of trauma patients will contribute to reductions in mortality and morbidity; however, the most significant impact on reducing the worldwide burden of motor vehicle-related trauma will come from injury prevention programs organized at societal and governmental levels.

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