

Study of Road Traffic Accidents Arriving in Emergency Department At A Rural Hospital Adjacent to National Highway.

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Abstract: The objective of the study our country stands first globally when it comes to RTA we are now the world leaders in road traffic accident rate & related mortality. In this study we bring out the epidemiological factors, risk factors, use of safety measures, compliance with traffic laws, presenting injuries & ED intervention required, in patients with road traffic accidents.

Materials & methods: Our study is a cross sectional observational study and the data obtained of 688.No. of accident victims arriving at any time to our Emergency [causality] department. Collected data included information about basic details, basic crash characteristics, risk factors, use of safety measures, injuries sustained, ED intervention required & disposition.

Results: Most common age group is 30-40 (29.5%), followed by 41-50 (23.11) 21-30 yr (17.29%), 51-60 yr (6.25%), 61-70 (5.23%) 11-20 yr (4.21) & >70 (2.90%). Mean age of presentation was 36.01 years (23.30%). Males are the mostly affected victims of RTA forming 81.68% and females constitute 18.31%:

Drunk & Drive: In our study 1.89 of the victims to RTA have consumed alcohol many of them though they have consumed alcohol deny consumption. 2 wheeler 227 (69.20%) (Auto 15 (4.57%) other vehicles including cycles, cars, trucks lorry constitutes 26.21%. our study showed that majority of patients [377] about 52.80% used ambulance 108 services other modes of transportation like vans, car, auto, and some patients with minor injuries just walked in some where used two wheelers to come to the hospital. Due to the awareness of the services of 108 ambulance many patients used the services of the same. From early morning 12.am to 6pm. 48.32% suffered accidents and 51.67 % from 6 pm to 12 midnight .and most of the patients who met with the accident in the night sought admission . :-

our studies shows that the pedestrians are the major victims 42.44% followed by the drivers of two , four wheelers, auto , and heavy vehicles 32.84% and lastly passengers 24.72 % including the pillion passengers. :- Usage Of Seat Belt Driving In Four Wheelers 62 Person Never Used Constitute 72.09 Percent. (6.6%) 150 patients were found to be using mobile phones at the time of accident. 65.25% had only soft tissue injury only, 9% had head injury. 3.77% thoracic cage injury accounted 7.7%. abdominal injuries constitutes 3.6% skeletal injuries nearly constitutes 10 % and spinal injury 0.14%.

Conclusion: our study clearly shows being on the national high way and prone for many accidents and being well equipped secondary, tertiary level referral trauma centre specially dedicated to the management of trauma patients with a proper triage plan and utilization better resources. Our study also clearly reveals that emergency dept. should be trained in laceration repair, dressing, splint/slab application, fracture/dislocation reduction, ICD insertion, crash intubation, reading X-rays, performing FAST etc for better management of trauma patients.

Keywords: Rta. Risk Factors, And Saftey Measures.

I. Introduction

Over 3400 people die on the world's roads every day and tens of millions of the people are injured or disabled every year Children, pedestrians, cyclists and senior citizens are the most vulnerable of road users .WHO works with partners-governmental and non-government organizations –around the world to prevent road traffic accidents and promote good practice related and advocates the risk factors like over speed and not wearing seat belts ,helmets and child restraints. in 2015 world status report on road safety And the information got from 180 countries, reveals that deaths due to road traffic accidents has a plateau at 1.25 million per year and out of which the low income countries record highest fatalities .The advanced countries no.17 are using best practice on drink and drive over speeding motorcycle helmets including the pillion and following the traffic rules strictly .child restraints .thus reducing to less than 50% of death and injuries from road traffic crashes by 2020.⁹

Objectives

1. To study the victims of road traffic accidents & identify the risk factors for road traffic accidents
2. To identify the various presenting injuries.
3. To identify the emergency department interventions required.

II. Material and method

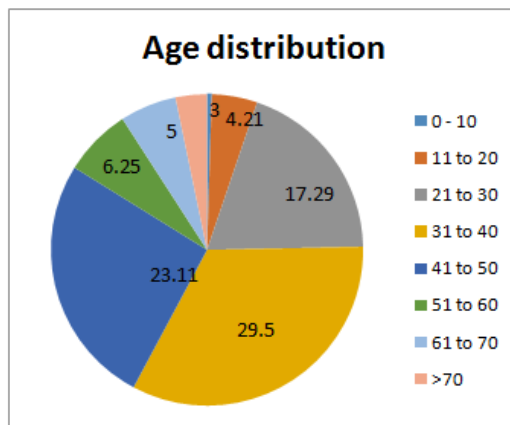
This is an cross sectional study done at R.L.Jallappa Hospital A Rural Based Teritary Hospital Adjacent To National Highway Between Chennai And Bangalore Road. The data was obtained from 1 Jan. 2015 till Dec. 2015 .amounting to 688 patients from the Patients/relatives/ accompanying persons of the road traffic accidents arriving at the casualty/ Emergency department. Data included basic details [name, age, sex, license details, time of arrival, mode and time of accidents, consumption of alcohol, use of safety measures presenting injuries, Management at emergency department and disposition of the patient

III. Statistical method

Data collected in pre-formatted sheet, entered into EXCEL (Microsoft corporation), analyzed. Means and frequencies calculated.. Result and analyzed.¹

Table no.shows 1. commenest age group affected.

AGE YEARS	TOTAL	%
00-10	3	0.44%
11-20	29	4.21%
21-30	119	17.29%
31-40	203	29.50%
41-50	159	23.11%
51-60	43	6.25%
61-70	36	5.23%
>70	20	2.90%



Most common age group is 30-40 (29.5%), followed by 41-50 (23.11) 21-30 yr (17.29%),51-60 yr (6.25%), 61-70 (5.23%)11-20 yr (4.21) &>70(2.90%%). Mean age of presentation was 36.01years (23.30%).. this shows that the productive age 21 to 50years of life are the victims thus the economy off the family is affected.¹ 2. Sex Ratio:- Males are the mostly affected victims of RTA forming 81.68%and females constitute 18.31%⁵.Majority of the RTA victims were males probably due to their profession & outdoor activities⁶

SEX	Nos.	%
V MALE	562	81.68%
FEMALE	126	18.31%

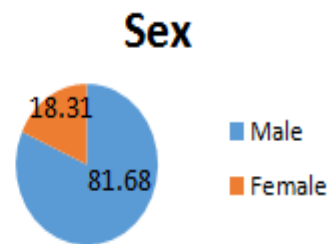


Table 3:- drunk&drive :- in our study 1.89 of the victims to rta have consumed alcohol many of them though they have consumed alcohol deny consumption.

Drunk & Drive	Nos.	%
Yes	13	1.89%
No	675	98.11%

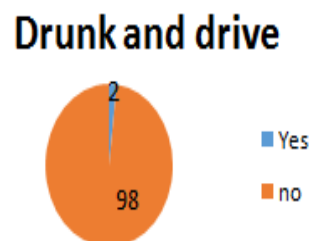
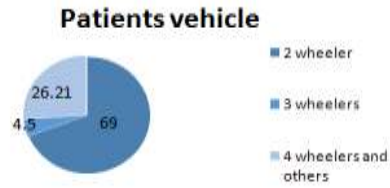


Table 3. Patient’s vehicle: Type of vehicle No (percentage) of victims.³ in our studies 2 wheeler 227(69.20)(Auto 15(4.57%)other vehicles including cycles ,cars, trucks lorry constitutes 26.21%

Type vehicle.	Nos.	%
2 wheelers	227	69.20
3 wheelers	15	4.57%
4wheelers & others	86	26.21



Tables 4:- shows the mode of arrival of victims to the ED,⁴our study showed that majority of patients [377] about 52.02% used ambulance 108 services other modes of transportation like vans, car, auto ,and some patients with minor injuries just walked in some where used two wheelers to come to the hospital. Due to the awareness of the services of 108 ambulance many patients used the services of the same.

MODE OF TRANSPORT TO HOSPITAL	Nos	%
AMBULANCE 108	377	52.02
Other mode of transport	368	47.98

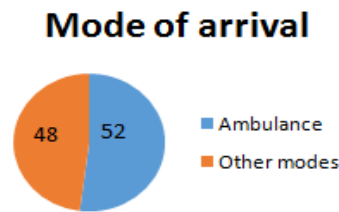


Table 5-Time of RTA

Timing of RTA No (percentage) of victims From early morning 12.am to 6pm. 48.32% suffered accidents and 51.67 % from 6 pm to 12 midnight .and most of the patients who met with the accident in the night sought admission ..⁵

TIME OF ACCIDENT	Nos.	%
12:00AM- 6:00PM	318	48.32%
6:00PM- 12:00AM	370	51.67%

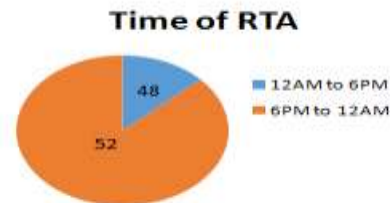


Table shows 6:- our studies shows that the pedestrians are the major victims 42.44% followed by the drivers of two , four wheelers, auto , and heavy vehicles 32.84%and lastly passengers 24.72 % including the pillion passengers. ⁷

Victims	Nos	%
PASSENGERS	170	24.72%
Drivers	226	32.84%
PEDESTRAINS	292	42.44%

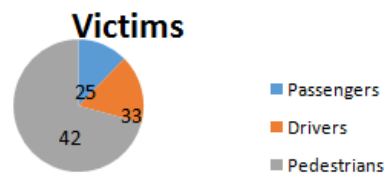
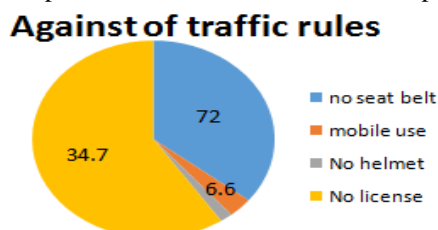


Table no 7 :- usage of seat belt driving in four wheelers 62 person never used constitute 72.09 percent.²

SEAT BELT	Nos	%
YES	24	27.90
NO	62	72.09
Use of mobiles	103	6.6
Helmet	23	3.35

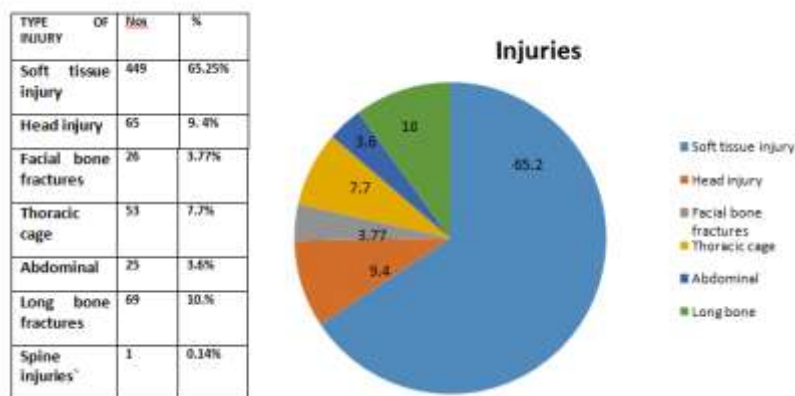


(6.6%) 150 patients were found to be using mobile phones at the time of accident.

Table.8:- Shows persons responsible for the accidents 34.71% do not have license and 65.28 % have .²

Driving license	Nos	%
With	314	65.28
WITHOUT	167	34.71%

Table 9– Distribution Of Significant Injuries



In our studies the distribution of injuries were soft tissues injuries amounted to 449[65.2%], 65 [9%] persons had head injuries, 26[3.77%] had facial bones injuries,53[7.7%] persons had thoracic cage injuries, abdominal injuries 25 persons [3.6%] ,long bones injuries amounted to 69 cases[10%]. 1[.14%] victim had[.14%] had spinal injuries.

Table:-10 Distribution of Significant Head Injury⁸ :-

EDH, SDH, SAH, contusion	38	5.53%
Only skull fractures	17	2.47%
Facial bone#	8	1.16%
Orbital injuries(black eye)	2	0.29%

On analyzing the pattern of head injuries in patients of road traffic accidents 65 [9%] persons out of which had 38[5.53] people had significant intracranial injuries like EDH,SDH,SAH, required surgical interventions,17[2.47]had skull bone fractures. 8 [1.16%] people had facial bone fractures.

Table 11:- Distribution Of Significant Chest Wall Injuries:-

Soft tissue injury	20	2.91%
Only rib fractures	15	2.18%
Rib #with surgical emphysema	3	0.43%
Rib # with pneumothorax	6	0.87%
ICDS insertion	9	1.31%

On analyzing the pattern of thoracic cage injuries 53 [7.7%] people had significant injuries out of which only had Soft tissue injury 20 [2.91%] .15[2.18] had rib fractures . 3[0.43%] victims had rib fractures with surgical emphysema. 6[.87%] patient had ,rib fracture with pneumothorax and all needed ICDS 9 1.31] patient

Table:-12 Distribution Of Significant Abdominal Injuries:-

Soft tissue injury	15	2.18%
Liver injury	2	0.29%
Splenic injury	4	0.58%
Mysentry Tear	2	0.29%
Mysentry tear with intestinal tear	2	0.29%

On analyzing the abdominal injuries 15[2.18%] people had only soft tissue injuries,2[2.18%] had liver injuries ,4 [.58%] victims had splenic injuries, 2 patients only mysentry tear another 2 had mysentry with

intestinal tear. All required laparotomy and all corrective procedures, like repair of the liver lacerations ,and packing with gauge in case of liver injury, three patient underwent emergency splenectomy and one had spenorraphy ,and the mysentry and intestinal injuries underwent closures of the repair.

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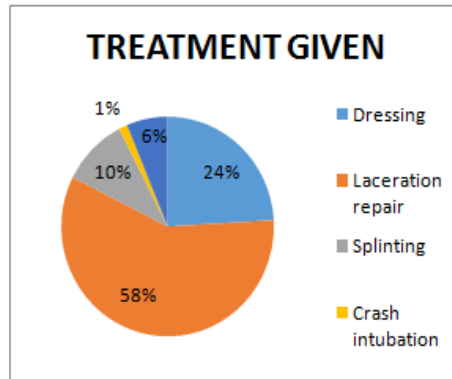
Table 13. Distribution Of Significant Skeletal Injury:-

Upper Limbs	17	2.47%
Lower Limbs	20	2.9%
Pelvic Bones	5	0.72%
Spinal	1	0.14%
Multiple #	26	3.79%

Analyzing the skeletal injuries 69 [10%] of the RTA people had boney injuries ,out of upper limb 17[2.47%] lower limbs no. 20[2.9%] pelvic bone factures 5[0.72%] one [0.14%] had spinal fracture 26[3.79%] had multiple fractures.

Table14 :- E D Intervention/S Required

	Nos	%
Dressing only	167	24%
Laceration repair	400	58.1%
Splint/slab, fracture/dislocation reduction	69	10%
I.C.D.S insertion	9	1.31%
Crash intubation	43	6.25%



Emergency intervention and the causality[Emergency Department], 167[24%] people required only dressing and 400[58%] required laceration repair ,69[10%] had skeletal injury and treated accordingly like splinting, slab applications, fracture ,dislocation were reduced either by application of slap or surgery. 9[1.13%] required ICDS insertion, 43[6.25%] underwent crash intubation for poor oxygen

	Nos	%
Home	278	40.40%
Ward	229	33.38%
SICU	47	6.85%
ICU	109	15.88%
EMERGENCY OT.[G,SURGERY]	10	1.45%
DEATH	15	2.18%

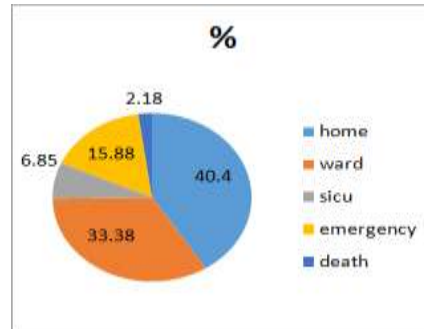


Table:15. Pattern of Disposition of the victims

Flow of the RTA victims 400 [58.30%] victims went home after taking necessary treatment for minor soft tissue injury,299[33.38%] was shift to the wards 47[6.85%] was shifted to SSIU . 109 [15.88%] patients shifted to ICU management .10[1.45%] patients had to be taken to emergency laparotomy .unfortunately 15[2.18%] victims of RTA died in the causality while undergoing treatment. Our study clearly shows that a trained Physician in emergency medicine and handling effectively in laceration repair, dressing, splint/ slab application, fracture/ dislocation reduction, ICD insertion, intubation, reading x-rays, performing FAST for better management and a trained emergency Physician had significantly lower rates of missed major or life-threatening injuries when treated by physicians trained in managing trauma than those without specific training²

IV. Conclusion

Road traffic accidents are major killers in the modern world and takes away the daily bread winner of the family ,hence strict enforcement of traffic rules and regulation and advocating safety measures to the general public, regarding wearing helmets, seat belts against drink and drive ,having proper license ,having

separate lanes for pedestrian cyclists two wheelers and four wheelers not to use mobiles while driving, finally the Emergency Physicians should do rapid triage screening and assessing the trauma victims managing the same. The traffic police, NGO's and the public should inform the tertiary hospital like ours before in hand the arrival of the RTA victims so the Emergency department personnel will be well prepared to receive the victims especially in case of mass accidents.

Ethical committee approval: taken

Conflicts Of Interest None

Acknowledgement

we would like to thank our Principal Superintendent, Ethical committee members & MRD section.

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