

**Study Of Road Traffic Accidental Deaths (RTA) In and Around Valsad (Gujarat)**

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**Abstracts:** Accidents are now one of the major causes of death. Present study consists of 439 medico legal post mortems performed in Forensic Medicine Department, GMERS Medical College and Hospital, Valsad, Gujarat during the period of last 2 calendar years (1<sup>st</sup> January. 2012 to 31<sup>st</sup> December. 2013). Out of them, 90.66% cases were of unnatural deaths. Out of unnatural death we found 146 cases (36.68%) died in road traffic accidents. In 36.98% cases were age group of 21- 30 years. 44.83% accidents occur in time period of 12- 18 hours. Thus all data including type of vehicle involved, head injuries, regional injuries, type of skull fracture in head injury, type of haemorrhage and how long victim survived. [Vaghela P NJIRM 2015; 6(1):27-30]

**Key Words:** Injury, head injury, regional injury, accident, etc

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**Introduction:** The term accident has been defined as an occurrence in the sequence of events which usually produces unintended injury, death or property or damage <sup>1</sup>. Among all types of accidents, those caused by motor vehicles claim the largest toll of life and tend to be most serious followed by railway tract accidents. There are almost 885,000 deaths from accidents annually and total casualties number goes up to 10 million. 80,000 people were killed in 1998 in road accidents in India as compared to 60,000 in 1991, 40,000 in 1986. Studies have done by WHO shows those road accidents accounts for 2.5% of total deaths. But in age group of 5-44 years, it is as high as 10% and is among six leading causes of death <sup>1</sup>. According to study conducted by National Transportation Planning and Research Centre, Delhi a person is killed or injured in every 4 minutes in traffic accidents in India. Accidents constitute a complex phenomenon of multiple causations. The etiological factors are classified into human and environmental factors <sup>2</sup>. There is a steep rise in vehicular accidents in present era due to urbanization and tremendous growth in road transport sector and railway transports. Population explosion is a catalyzing factor for a number of accidents. The important human factors could be lack of adequate traffic planning and consumption of alcohol. The present study has been carried out regarding the various epidemiological, medico-legal aspects of vehicular accidents in our country making an attempt to establish various causative factors, pattern and distribution of injuries and thereby to plan successful measures against it.

**Material and Methods:** We have taken the permission of IRB for this entire study. The material of the study consists of 439 medico legal post mortems performed in Forensic Medicine Department, GMERS Medical College and Hospital, Valsad, Gujarat during the period of last 2 calendar years (1<sup>st</sup> January. 2012 to 31<sup>st</sup> December. 2013). Out of total 439 medico legal post mortems, 398(90.66%) cases were of unnatural deaths [Table no. 1].

**Table 1: Natural and Unnatural Deaths**

	2012		2013		Total
	cases	%	cases	%	
Natural	24	13.41	17	6.54	41(09.44%)
Unnatural	155	86.59	243	93.46	398(90.66%)
Total	179	100	260	100	439(100%)

The information regarding cause of death, age, sex, marital status, socio economic status, area wise distribution and other details were taken from medical record section Forensic Medicine Department, GMERS Medical College and Hospital, Valsad, Gujarat and concerned investigating authorities. All the data thus collected and analysed systemically and statistically. Various demographic and epidemiological characters related to victim's accidents were gathered from police records or by direct interrogations of the police officials, or relatives and friends of deceased

accompanying dead bodies. The pathological features of these cases as type of injury, pattern and distribution of injuries, body parts involved, fatal injuries and cause of deaths were noted at the actual autopsy examination of victim. All the data thus collected was analyzed statistically.

The present study was conducted in department of Forensic Medicine Department, GMERS Medical College and Hospital, Valsad, Gujarat. It includes the retrospective study & analysis of 146 cases in which cause of death was Head injury (83 cases) and Regional injuries (63 cases) due to RTA, over a period of one year from 01/01/2012 to 31/12/2013. The epidemiological data such as age, sex, time of accident, survival time, type of victim, type of vehicular occupants & all pathological features as type & site of skull fracture, type of intracranial hemorrhage were noted at the actual autopsy examination with related history as well.

**Result:** Total 146 cases studied during two year period (1<sup>st</sup> January 2012 to 31<sup>st</sup> December 2013). Male comprised 92 cases (63.01%) and female 54 cases (36.99%) [Table no. 2].

**Table 2: Cause of Death Wise Distribution**

Cause of death	Male	Female	Total
Head injury	57	26	83
Regional injuries	35	28	63
Total	92	54	146

Age groups divided in to 10 years period ranging from 0 -70 years. The youngest victim was 7 years old boy and oldest was 69 years male. Highest victims of RTA found in 21 – 30 years group 54 cases (36.98%) and least in both extreme age group, 0 – 10 and 51 – 60 and > 61 years age group [Table No.3].

**Table 3: Age and Sex Wise Distribution**

Age (years)	No. of cases		
	Male	Female	Total
0-10	3	1	4 (2.73%)
11-20	7	5	12(8.22%)
<b>21-30</b>	<b>37</b>	<b>17</b>	<b>54(36.98%)</b>
31-40	22	15	37(25.35%)
41-50	10	8	18(12.33%)
51-60	6	4	10(6.85%)

>61	7	4	11(7.54%)
Total	92	54	146(100%)

Highest no. of RTA cases occurred during 12:01 - 18:00 hrs 65cases (44.53%) and least no. of cases during 00:01- 06:00 hrs 10 cases (06.85%).[Table No.4]

**Table 4: Distribution According To Time Of Accident**

Intervals(hrs)	No. of cases (%)
00:01-06:00	10(6.85%)
06:01-12:00	23 (15.75%)
12:01-18:00	65 (44.53%)
18:01-24:00	48 (32.87%)

In present study pedestrians 41 cases (28.08%) and vehicular occupants 105 cases (71.92%)[Table No. 5].

**Table 5: Distribution According to Type of Victim**

Time of victim	No. of cases
Pedestrian	41(28.08%)
Vehicular accident (two wheeler, LMV, HMV)	105(71.92%)
Total	146(100%)

LMV occupants are mostly 58 cases (39.72%), involved in RTA death, which is very high in comparison to deaths by two wheeler 47 cases (32.20%) and HMV 41 cases (28.08%). [Table No.6]

**Table 6: Distribution According to Type of Vehicular Occupants**

Type of vehicular	No. of cases
Two wheeler	47(32.20%)
LMV	58(39.72%)
HMV	41(28.08%)

The study shows fissure fracture was commonest 57 cases (39.05%), where as comminuted, depressed and multiple type (>1) were seen in 39 cases (26.71) %, 34 cases (23.38)% and 16 cases (10.96%) respectively[Table No.7].

**Table 7: Distribution According to Type of Skull Fracture**

Type of skull fracture	No. of cases
Fissured	57(39.05%)

Comminuted	39(26.71%)
Depressed	34(23.38%)
Multiple	16(10.96%)
Total	146

Most commonly affected site is parietal region 41 cases (28.09%), which is followed by multiple site (>1) involvement 34 cases (23.28%). The least affected site is occipital region 13 cases (8.91%) [Table No.8].

**Table 8: Distribution According to Site of Skull Fracture**

site	No. of cases (%)
Frontal	25 (17.12%)
Temporal	33 (22.60%)
Parietal	41(28.09%)
Occipital	13 (08.91%)
Multiple	34 (23.28%)
Total	146 (100%)

**Table 9: Distribution According to the Type of Intracranial Hemorrhage**

Type of Intracranial Hemorrhage	No. of Cases (%)
Extradural (EDH)	28(19.18%)
Subdural (SDH)	48 (32.88%)
Subarachnoid (SAH)	26 (17.80%)
Intracerebral	3 (2.06%)
Intraventricular	4 (2.73%)
Multiple(>1)	37 (25.35%)
Total	146(100%)

Ours study shows SDH was commonest type of intra cranial hemorrhage 48 cases (32.88%), which is followed by multiple type 37 cases (25.35%). The least observed hemorrhage was intraventricular 4 cases (2.73%) [Table No.9]. Most of the RTA victims died within 24hrs 80 cases (54.80%) and only 16 cases (10.95%) can survive for more than a week. [Table No.10]

**Table 10: Distribution According to Duration of Survival Time**

Duration	No. of cases (%)
0 – 24hrs	80 (54.80%)
24 -48hrs	28 (19.18%)
2 – 7days	22 (15.07%)
> 7days	16 (10.95%)
Total	146(100%)

**Discussion:** Head injury is still the major cause of death in RTA cases. The reason behind this may be urbanization, more industrial growth in smaller towns as well as population growth & increasing number of two wheelers and LMV. These factors cause tremendous overcrowding of vehicles on roads which eventually leads to more accidents. In present study, male is more than female almost twice because males are more mobile due to going to work, studies etc. and so more prone to accident. Nowadays female are also working at every fields, so they are increasing prone to accidents as compared to Dhaval J. Patel et al study <sup>6,7,8,9</sup>. In present study, third and fourth decades were commonly affected. This corresponds with other studies <sup>7, 9, 10, 13</sup>. This age group mainly consists of working people and students, who usually traveled by own vehicles or other public transportation. This leads to involvement of this age group more commonly in RTA. Vehicular occupants were more involved than pedestrians. This corresponds with other studies <sup>9,11,12,13</sup>. It is due to careless and fast driving mainly by younger age group. Some of the studies also showed the more involvement of pedestrians than vehicular occupants which results are opposite to other study <sup>8,9,11</sup>. In our study most of the accidents were in afternoon hours (12:01-18:00 hrs) followed by morning hours (18:01-24:00 hrs). It may be due to heavy traffic during peak hours and due to vision affected at night. Most common type of intra cranial hemorrhage was subdural hemorrhage 48 cases (32.88%). This corresponds with other study <sup>6</sup>. This is followed by multiple type of hemorrhage 37 cases (25.35%), and followed by subarachnoid hemorrhage 26 cases (17.80%) where as in other studies second most common type of hemorrhage was subarachnoid hemorrhage <sup>11</sup>. Intra cerebral and intra ventricular hemorrhages found in very less number of cases, which corresponds with other studies <sup>9, 11, 13</sup>. In present study, 80 cases (54.80%) of RTA victims died on the spot or within 24 hours of accident. This corresponds with other studies <sup>9, 14, 15</sup>.

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Conflict of interest: None
Funding: None
Cite this Article as: Lad K, Vaghela P, Bansal A, Kapadiya K. Study Of Road Traffic Accidental Deaths (RTA) In and Around Valsad (Gujarat). Natl J Integr Res Med 2015; 6 (1): 27-30