

Analytical Study of Railway Accidental Deaths

G. Lavanya Kowsil¹, Kampa Venkat Nagaraju², Jakkam Surendar³

¹Associate Professor, ²Assistant Professor, Department of Forensic Medicine And Toxicology Gandhi Medical College, Secunderbad, ³Assistant Professor, Department of Forensic Medicine And Toxicology, Kakatiya Medical College, Warangal

Abstract

Travel but on the other hand caused lot of damage to human lives in the form of accidents. The present study conducted at Guntur medical college, Guntur over the period of two years among the autopsies done in the forensic medicine department. Out of 1748 autopsies railway accidental deaths were 114 with male predominance. Most of the railway accidental deaths were seen in the middle age. More deaths were due to decapitation.

Key words- rail way accidents, suicide, decapitation.

Introduction

Britishers were the pioneers in introducing Railways in India. Their intension was to move their troops faster, and transport these goods to distant places with an idea of proving their trade and to establish their empire in India.

Post independence with advent of urbanization and globalization the government made major move in improving transportation system through out the country. The major transportation system is available in the following form.

- a) Air way
- b) Road transportation
- c) Sea
- d) Railway

In developing countries like India where majority of population reside in rural areas and are below poverty line. Hence the earliest, simplest and most importantly cheapest way of transportation would be the railways. In view of this the Indian government allotted more budget and subsequently developed the Railway transportation system .In India railway is the largest public transportation system. ¹

Bernard knight classified railway accidents broadly into three main groups. Train accidents, to train and

rolling on or affecting and failures of rolling stock, track and structures. Movement accidents is the accidents to people caused by the movements of railway vehicles excluding those in train accident to people. On railway premises but not connected with the railway vehicle.

Whereas movements fatalities are primarily concerned with involvement of the Train without any fault of train. Main reasons for the Railway accidents are:

1. Due to errors and failure of Railways.

A) Mechanical problems:

1. Failure of breaks.
2. Track faults.
3. Electrical short circuits.

B) Human Errors:

1. Not observing the signals by the engine driver.
2. Not giving proper signals by Guard and cabin crew.
3. Carrying explosives by passengers.

C) Natural

1. Foggy weather
2. Calamities like Floods and earth quakes.

II. Due to movements of the fatalities across Railway line.

- a) Unmanned level crossing
- b) Foot board traveling
- c) Getting into running train
- d) Tress passing
- e) Roof Top traveling
- f) Using Railway track for attending call off nature.
- g) Crossing below stable trains.
- h) Passing on long bridges.
- i) Standing on track.

We must not forget Railway track could be the place of disposal for those dead bodies of Homicidal Origin to cancel the crime. Hence it is not correct to say that all bodies found on railway track are deaths due to train injuries.

It is not reliable to say that the injuries sustained on the railway track are of Ante mortem in nature.

Hence it is found necessary to make detailed examination and wounds present on the dead bodies and different other factors, to know the cause and manner of deaths.

Aims and Objectives

1. By analyzing the pattern of injuries – To arrive at a conclusion as per the manner of death.
2. To know socioeconomic, Human related problems and any other factors responsible for the deaths occurring on the railway track.

Material and Method

Among the autopsies conducted by the department of Forensic Medicine, Guntur Medical College, Guntur, during the period from 01-01-2003 to 31-12-2004, the cases of death attributed to railway injuries were studied in detailed.

The preliminary data was collected from the inquest reports, the hospital case sheet records and the history revealed from relatives, friends etc., of the deceased

where the identity was established a detailed history has been collected about the victim of railway injuries where ever possible to know whether he was getting into a moving train or was crossing the track or walking along the track it self etc., and also gathered information whether the deceased had any hearing or sight defect and whether he was on an alcoholic or a drug addict. His socio- economic status also has been taken into account. A detailed history has been collected regarding the time and place of fatal occurrence.

Observations

During the period between 1-1-2011 to 31-12-2012, 1748 autopsies were conducted at Government General Hospital, Guntur out of which 114 were Railway accidental deaths. out of which 56(6.48%) were in 2011 and 58 in 2012 (6.56%) showing marginal increase of 0.8%. even though total number of autopsies shows marginal increase of 20 cases which indicates increase in tendency of railway deaths in accordance with increase in Urbanization.

During the two years study the male autopsies were more than females. During the year 2011, total number of autopsies were 56 the male number were 49 and female were only 7. During the year 2012 total number of autopsies were 58 out of which 52 cases were of male and 6 were female cases. This shows that there is increase of 3 cases of males in the year 2012, but there was decrease of female cases by one.

Regarding the age, in the age group of 0-9 yrs there were no railway fatalities, with regards to the age group of 20-39 yrs. The number of railway fatalities were 58 i.e. year 2011 and 2012 which account to 50.88%. this shows that the middle age group is more susceptible for railway accidents.

The un identified bodies were 16 in the year 2011 amounting to 28.57% and 23 cases in the year 2012 amounting a 39.66% which shows an increase of 11% in the year 2012.it shows that the accidental deaths in the year 2011 were 34 out of 56 railway autopsies which amounts to 60.71% and suicidal cases were 20 which amounts to 35.71% and there was 3.58% of other cases.

In the year 2012 out of 58 railway autopsies the accidental cases were 37 amounting 63.79%. with regards to suicidal cases the number were 19 amounting to 32.76% and there were 3.45% of other cases.It is clearly evident that there is slight increase of accidental

deaths in year 2012 compare to 2011 i.e. 3.08%.

The deaths occurred in outskirts were 57 in both years which amounts to 50%. The bodies which were recovered in the city limits were 29 which amounts to 23.44%. The bodies found in the station limits were 28 amounting to 24.56%. The Bodies Found in the station limits were 28 amounting to 24.56% from the above, it is evident that the more deaths occurred due to railways on the outskirts of the city.

It is conclusive that the deaths during the night time are more i.e. 72 out of 114 cases amounting to 63.16%. The witnessed railway deaths were 67 out of 114 cases amounting to 58.77%.

Out of 114 cases 93 persons died on the spot amounting to 81.58% and 10 persons survived for 24 hours amounting to 8.77% and 11 persons could survived for more than two days amounting to 9.65%. 66 deaths were due to decapitation associated with lacerations, contusions and fractures amounting to 57.89%. the remaining 42.11% were having only contusions, fractures and lacerations.

During the months on November, December and January and February the railway deaths were 45 amounting to 40% of total cases.

Discussion

During the period between 1-1-2011 to 31-12-2012, 1748 autopsies were conducted at Government General Hospital, Guntur out of which 114 were Railway accidental deaths. out of which 56(6.48%) were in 2011 and 58 in 2012 (6.56%). this study results were closer to study of Basu, R., Bose, T.K. et al(2002) who found 299 (6.11%) cases of Railway fatalities among a total of 4893.²

There is increase of railway deaths in the year 2012 as compared to year 2011 by 0.08% because of increase in population and increase of passengers travelling by train and it is a cheaper mode of travel compared to other modes like Bus, Air and Water ways.

The deaths are more in males due to

- Family problems
- Agricultural and Financial loses
- Business losses

as most of times he is the responsible and earning person for the maintenance of the family, The age group between 20-40 yrs are more involved in railway deaths. which was similar to a study conducted by Pelletier A.^{3,4,5,6,7,8,9,10,11} which could be due to various reasons like

- Failure in examination
- Failure in love
- Un successful marital life which are common in India,
- Un employment
- Psychological problems

In India, the villagers will not have any kind of Identity cards unlike other countries, where each and every person will be having an Identity card. Due to this, it is difficult to find out the Identity of the individual in railway accidents as in most of the cases, the body will come in multiple pieces, which makes it even more difficult for identification.

The accidental deaths are more because:

1. People traveling the train even though there is heavy rush, by standing on foot board.
2. Traveling on top of the train.
3. Getting in and out of the running train and some people will use the track when the gate is closed in a hurry.
4. The Youngsters have fades like by watching movies they try to imitate the film Heroes by crossing the running train, running across the train which in films is just filmy.

In India we have some unmanned level crossing gates, some persons will cross the tracks without noticing on either side of the track in unmanned level crossing. There are number of incidences where the vehicles were made to stay on the railway track due to mechanical failure which subsequently resulted in the railway accidents.

The suicidal cases are due to

- Certainty and easy mode of death
- Some poor and under privileged people

like beggars, very frequently travel in train without purchasing tickets. Who have, chronic diseases will die in the railway compartments and platforms and lavatories of the train.

In India the distance from the residence is no bar for the occurrence of suicide or accidents but many of the accidents occurred on the track which were near to their residences as the residents in those locality are accustomed to the railway track and many of them use the tracks for daily passage, nature of call during which period accidents occur

People prefer the outskirts of the railway station for committing suicide

- Avoid witnessed by others
- As the train will be moving fast, the movement of people will not be there.

Because of the above said reasons the number of deaths are also more during the night times as it will not be witnessed by other because of darkness.

The survival period is very less in the railway fatalities which will cause instantaneous deaths in majority of the cases in the form of decapitations, fractures and multiple injuries.

Very few cases may survive for one to two days with same injuries.

The majority of suicidal cases in railway deaths – the person will lie down over the track to make certain that death occurs either by decapitation or traumatic amputation

The more number of deaths occurred during the months of November, December, January and February are due to

- Winter season – In winter season there will be fog, mist and covering of the face and head by towel and clothes to avoid wind and chilliness for not noticing the train while crossing the track level.
- During the night most of the times under the influence of Alcohol – there will be visual disturbances and level of consciousness which results in railway accidents.

Due to failure of signals, dislocation of the tracks unfunctioning of the breaks, natural calamity even

though the driver excepted the accident he will not be in a position to avoid it because of above said problems.

As per the Indian railway act the driver who notices the railway deaths on the track is supposed to inform the next near rail way station which is not being done in most of the cases resulting in dismembering of the body by animals which subsequently leads to difficulty in identification.

Conclusion

1. An autopsy study of 114 railway deaths are carried out during the period from 01-01-2011 to 31-12-2012. Railway deaths constituted 6.52% of total autopsies. The male and female ration of railway fatalities was 7.77:1% on average.

2. The maximum incidence of cases were in the second decade followed by third and forth decade

3. The railway deaths were more accidental less frequently suicidal and very rarely homicidal. I have not come across a single case of homicidal railway death in my study.

4. The accidental deaths in railway injuries are mostly while crossing the track or walking along the track.

5. The more deaths occurred on outskirts of railway station.

6. Decapitation or transaction of trunk is fatal injury in the majority of the suicidal cases.

7. Viscera commonly involved are spinal cord followed by brain, intestines, lungs, liver etc., it is also found that injuries to the upper half of the body are more common than compared to the lower half of the body.

Suggestions:

1. Most of the railway deaths are not properly investigate and even the identity of the victim has not been established in most of the cases. It is proper for the investigating Officer to establish the identity of the victim. Which in turn rule out the motive, to clear the doubts of the litigant public.

2. Most of the railway deaths are investigated by the lower level police officer – usually the Head Constable, who carries out the task as a routine one, with the sole idea of how to shift the body to the nearest mortuary and

how to cope with the expenditure. In most of the cases the scene panchanama is not properly made, let alone taking the photographs of the scene. Resgetau which becomes the main linking evidence in the interpretation of nature of death in the later part of the investigation. Hence, it is advisable to entrust the investigation to a police officer not below the rank of sub inspector the police, the scene should be investigated properly and photographs particularly, colour photographs should be taken in different angles as far as possible before shifting the body for autopsy.

3. It is common to see people often crossing the railway track carelessly, just in front of the on coming running train even when level crossing gate is closed. It is also common to see the pedestrians and two wheeler drivers crossing the railway track. It is observed that most of the accidents victims are illiterate and ignorant people from low socio-economic strata. Greater public awareness and preventive measures may reduce the tremendous human and financial costs of train related accidents. The data sets and accidents at the crossings should be made by studying the characteristics i.e, like warning devices, volume of vehicle traffic, volume of train traffic, visibility condition etc., preferably on models. This facilities are sufficient base from which the accident potential of any level crossing can be estimated and preventive measures can be taken like construction of over bridges.

4. At the unmanned level crossings there is not one to warn, regarding the fast approaching trains. The accidents are very common here, especially due to collision with two or four wheelers, hence even at unmanned gates steps should be taken to install warning devices like sirens, so that the public know that the train is approaching. Another draw back noticed with the Indian Railways is closure of railway gates some times 15 to 30 minutes before a train passes through that point. This results in traffic jams and unrest in the public crossing resulting in unlawful particularly in urban areas, this in turn has its role in increased accidental fatalities from railways. Hence, steps should be taken in such a way that the on coming train should pass to that through particular point within stipulated time [with in 5 or 10 minutes] after the closure of the railway gates.

5. To discourage suicidal or accidental death from railway injuries trespassing of railroad property should be declared as prohibited and unlawful. By taking steps like

1. Reducing public access to the tracks.
2. improving surveillance by railway staff.
3. facilitating emergency staff.
6. Getting in or down of a running train, travelling on roof tops and standing or leaning from the doors of the compartments, should be discouraged by educating the public if permitted penalized.
- 7 Ticket control, surveillance, law enforcement and safety engineering are also other methods of injury control interventions.
8. Environmental changes, like changing of Locomotive front design, lowering of catch guard is also suggested as strategy for reducing accidents and Suicides on railways.
9. To reduce personal injuries in train crashes suggestions are made to the improved maintenance of the seats and their frames and the use of safety belts.

Last but not the least suggestion to the Medical Officer who conducts autopsy of railway fatality, the Medical Officer should not think such a case merely as an intrusion in to his routine medical or medico-legal work. The autopsy should be carried out in similar lines. Like other medico-legal deaths, particularly violent deaths. Attention should be imparted to every minute detail, photographs taken where ever necessary supplemented by chemical and histopathological examinations, if necessary steps should be taken to preserve of chain of evidence. Re construction of events at the scene, study of injury pattern on the body corroborative evidence might lead to correct diagnosis regarding the cause and nature of death, if autopsy is carried out in a proper perspective.

Ethical Clearance- Taken from institutional ethical committee

Source of Funding- Self

Conflict of Interest - Nil

References

- 1) M. I Sheikh, I. V Shah & Rajesh Patel -- Study of death due to railway accident, *J Indian Acad Forensic Med*, 30(3). Harrington R. The neurosis of the Railway, *History Today*; 1994 July: 44(7) p-15-21.
- 2) Basu R, Bose TK. Batabyal S, Paul PB, Railway

- Fatalities Retrospective Study, 2002, Kolkata
- 3) Pelletier A (1997) Death among railroad trespassers, The role of alcohol in fatal injuries JAMA 277, 1064-6.
 - 4) Bloch-Bogusławska E, Engelgardt P, Wolska E, Paradowska A. Analysis of deaths caused by rail-vehicles in the materials collected by the Department of Forensic Medicine in Bydgoszcz in the years 1992-2002. Arch Med Sadowej Kryminol, Jul-Sep 2006; 56(3): 181-186.
 - 5) Sarvesh Tandon, Ajay Aggarwal, Sharma KL P. S Suicide Simulating homicide – A Railway track mystery, a case report JKAMLS 2001, 10(3): 60-63.
 - 6) Davis G. G. Alexander B. & Brissie R. M (1997) A 15- year review of railway-related deaths in Jefferson county, Alabama Am, J. forensic med & pathology 18, 363-8.
 - 7) Strauch H, Wirth I & Gecerick G. (1998) fatal accidents due to train surfing in Berlin. forensic sci. intl 94, 119-27.
 - 8) Sabale PR, Mohite SC. Railway Fatalities in South West Mumbai. Medico-Legal Update - An International Journal, 2010; Volume 10, Issue 1, Print ISSN: 0971-720X.
 - 9) Gharpure PV, Gharpure MA. The role of accidents in mortality. Indian Journal of Medical Sciences, March 1959; Vol. 13, No. 3: 227-231. 82
 - 10) Ammamullah S. Railway Death in Jammu & Kashmir. Medical News Medicine & Law, 1983; 101-105.
 - 11) Pathak A, Barai P, Mahajan AK, Rathod B, Desai KP, Basu S. Risking Limbs and Life – Railway fatalities in Vadodara: (A Retrospective Study). Journal of Forensic Medicine and Toxicology, 2009, Volume 26, Issue 1, Print ISSN: 0971-1929.