ANALYSIS OF RAILWAY FATALITIES IN VISAKHAPATNAM- AN AUTOPSY-BASED STUDY

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ABSTRACT

BACKGROUND

The deaths in railway workers were mentioned by Modi.¹ Bernard Knight.² Shapiro³ noticed 9% of incidence and about 10% incidence was noted by Davis GG⁴ among the workers who succumbed to railway injuries. Incidence of railway fatalities is increasing year by year in and around Visakhapatnam. Department of Forensic Medicine and Toxicology, Andhra Medical College/ King George Hospital, Visakhapatnam received 76 cases in 2010, 79 cases in 2011, 96 cases in 2012, 109 cases in 2013 and 118 cases in 2014.

The aim of this study is to determine the pattern of injuries and identify the common medicolegal problems associated with identity of deceased and cause of deaths at Andhra Medical College/King George Hospital Mortuary, Visakhapatnam city.

MATERIALS AND METHODS

This is a descriptive study of all railway deaths, which are seen in Mortuary of Department of Forensic Medicine and Toxicology, Andhra Medical College/King George Hospital, Visakhapatnam City over a period of one year, i.e. 01 January 2015 to 31 December 2015.

RESULTS

Railway deaths are uncommon, mostly accidental fall or trespassers and few are suicidal. A total of 1747 autopsies were done during the period. Ninety-two cases representing 5.26% of all bodies received by the mortuary were deaths due to railway fatalities. Most of the cases are accidental (72.83%) and suicidal (17.34%), rest of the 4.35% are undetermined manner due to putrefaction mutilated body parts. Male-to-female ratio is 8.25: 1. Peak incidence was observed in the age group of 21-40 years.

CONCLUSION

This study shows the pattern of railway injury deaths in Visakhapatnam and suggestions to establish identity of unknown persons and possible preventive measures to avoid or decrease railway fatalities.

KEY WORDS

Railway Injuries, Polytrauma, Manner of Death, Identity of Unknown.

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BACKGROUND

Injuries and deaths due to accidents are not escapable in modern ways of living. The accident deaths are mostly due to road traffic accidents, but deaths due to railway fatalities are not negligible, especially where railway traffic is higher. Indian Railway is the largest railway system in the world under a single management. Railway accidents occupied an important role in the medical and legal disclosures on trauma and traumatic disorders.

The deaths in railway workers were mentioned by Modi¹ and Bernard Knight.² Shapiro³ noticed 9% of incidence and about 10% incidence was noted by Davis GG⁴ among the workers who succumbed to railway injuries.

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Incidence of railway fatalities is increasing year by year in and around Visakhapatnam. Department of Forensic Medicine and Toxicology, Andhra Medical College/ King George Hospital, Visakhapatnam received 76 cases in 2010, 79 cases in 2011, 96 cases in 2012, 109 cases in 2013 and 118 cases in 2014.

MATERIALS AND METHODS

This is a descriptive study. The cases which were selected for this study are those brought by Railway Police for post-mortem examination to modern mortuary, King George Hospital/ Andhra Medical College, Visakhapatnam from 1st January 2015 to 31st December 2015. The total number of cases that were received as a consequence of railway accidents was 92.

The data was collected from visiting the scene of incidence, inquest reports, history revealed from relatives, friends etc. of the deceased, where the identity was established and hospital case-sheets (in cases which were admitted in the hospital). The data was tabulated in a pre-tested proforma and the results were analysed using appropriate statistical methods.

RESULTS

Pie Diagram 1. Sex Wise distribution of Cases

Pie Diagram 4. Place of Occurrence

Bar Diagram 1. Age Wise distribution of Cases

Cause of Death	No. of Cases
Decapitation	13
Head injury	31
Multiple injuries	22
Crush injury chest	4
Crush injury abdomen	4
Transection of spine excluding decapitation	6
Crush injury limbs	6
Natural death	5
Suffocation (fall of iron ore)	1

Table 1. Cause of Death Wise distribution of Cases

Pie Diagram 2. Identity Wise (Known/ Unknown)

Pie Diagram 5

Pie Diagram 3. Time of Occurrence

Nature of Incident	No. of Cases
Fall from Train	38
Trespasser	25
Nature call	4
Walking towards	2
Lying on track	13
Unknown	4
Natural death	5
Suffocation	1

Table 2. Deaths based on Nature of Incident

DISCUSSION

During the study period (January 2015 to December 2015) one year there were 92 cases of fatal railway injuries comprising 5.26% out of 1747 autopsies done at Andhra Medical College, Visakhapatnam. It is observed that out of 92 cases, 82 victims (89.13%) under this study were male and 10 (10.87 %) victims were female as shown in Pie Diagram 1.

It is observed from the Bar Diagram 1 that the highest number of victims were in the age group of 21 to 40 yrs. and contained a total of 52 cases, comprising 56.52% of total number of cases studied. This was followed closely by the group of 41 – 50 yrs., which contained 14 (15.22%) and the other group 51 – 60 yrs. with 9 cases (9.78%), above 60 yrs. with 9 cases (9.78%), least group 11 – 20 yrs. 8 cases (8.69%).

As evident from the Pie Diagram 2 unknown cases brought as railway deaths amounted to 23% (n= 21), which is significant. Reason being mutilation of bodies beyond recognition state; passengers from other states travelling to Visakhapatnam for business, employment, uneducated, unemployed with no proper identification documents/ cards in their belongings. According to statistics released by NCRB, in 2013 it was 1520 and 2014 it was 1667 number of unknown bodies recovered by police of Andhra Pradesh. This shows that the unknown/ unidentified bodies are increasing year by year. This report predicts that among all unidentified bodies, 60% of them were recovered by government railway police. Though Andhra Pradesh stands in 8th place, this percentage is much highest (5.44%) in our centre among all unknown bodies, which results in many families to suffer from presumption of death/ survivorship of their beloved.

The time of accident was split into 12-hour intervals, i.e. day time 6 am to 6 pm and night time 6 pm to 6 am. Perusal of Pie Diagram 3, about 67.39% (n= 62) of railway fatalities occurred in daytime only. This can be attributed to active working time of people, busy public roaming at railway crossings in stations, outskirts and town limits; walking along platforms and railway tracks, mind-set of individuals who look for opportune time as well as to avoid eyes of their family and relatives to commit suicide. This diagram shows 32.61% of cases, i.e. 30 numbers were from dusk to dawn, i.e. 6 pm to 6 am.

Out of 92 cases, 58 (63.04%) cases occurred within town limits followed by 21 (22.83%) at station limits and 13 (14.13%) in outskirts. The majority in station limits and town limits is due to crowd walking along platforms, crossing railway tracks in urgency of their work not using foot overs, accessible places for public to commit suicides. The least percentage of cases i.e. 13 (14.13%) compared to older studies is due to proper railway crossings/ gates, construction of flyovers/ bridges at railway crossings etc. due to urbanisation of Visakhapatnam.⁵

For our convenience, we have tabulated causes of death as mentioned in the table. Among railway fatalities, head injury is the major contributor for death accounting for 31 cases (33.69%). 13 cases were reported as decapitation and 6 cases with other level transection. Crush injury chest and crush injury abdomen cases were equal in number, i.e. 4 cases each. There are 6 cases where persons died of crush injury limbs. The 2nd most frequent cause of death in table is multiple injuries, which include combination of any of the above causes of death excluding transection. There are 5

cases of natural deaths of which 2 of respiratory pathology, 2 of coronary artery disease and 1 of hepatic failure. One case of suffocation due to falling of iron ore while unloading wagon on track.

On the basis of inquest reports, eyewitness, driver of train statement, presence of suicide notes and postmortem findings manner of death was ascertained. It was found that majority of cases were accidental in nature followed by suicides and natural deaths. Incidence of railway fatalities from accidental manner were 67 (72.83%) cases. When it comes to suicides, 16 cases were reported amounting to 17.39% which indicates increasing tendency of people resorting to commit suicide by putting themselves under or against a moving train. Natural deaths in this study amounted for 5.43%. Manner of death was not made out in 4.35% of cases, i.e. 4 numbers due to inadequate information given by railway police, significant percentage of unknown or mutilation of dead body by moving train. No case was reported with homicidal manner. This statistics of manner of death matching with other studies.^{6,7,8}

Majority of railway deaths were by people falling from train while boarding, getting down and running train. In our study, deaths due to fall from train are 38 in number amounting to 41.30% of all cases. Second common people at risk are trespassers⁹ contributing to 27.17% (25 cases). There were 13 cases of suicide by lying on track before running train. Four people suffered death while sitting for nature calls and 1 case suffocation due to fall of iron ore. In 4 cases, nature of incident was not ascertained.

CONCLUSION

In the present study, majority of victims were males. Male to female ratio was 8.25:1. The peak incidence was noted in the 2nd to 4th decade. Majority of cases belonged to urban areas. Most of the victims were manual labourers, travelling, moving and crossing near railway tracks. Most of the occurrences were in early hours of the day, between 6 AM and 9 AM.

Suggestions

1. Online registration of unknown bodies with identifying features, photographs etc., accessible to all public on daily basis.
2. Maintaining web portal for access to public to match their missing persons.
3. Interstate communication about missing persons and unknown bodies of their jurisdiction.
4. Railway safety gets prominence in each year railway budget, but to no avail. New technology is introduced every year and speed of train is increasing, which necessitates robust safety measures to make train journey safe. Railway ministry is trying to get safety measures available to make rail journey safe.
5. Rail accident investigation branch to be established, independently investigates accidents to improve railway safety and inform the ministry and public.
6. Public education and awareness programs directed at school age children, in particular with emphasis on the risks associated with trespassing on railway lines have to be made.

7. Fencing the railway tracks to prevent trespassing might look idealistic.

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