Pattern of Injuries in Railway Fatalities at Bowring and Lady Curzon Hospital, Bangalore

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Abstract

Background: The Indian Railways, started over 167 years ago, is among the world’s largest rail network. In a country like India, the railway network is ideal for long-distance travel and movement of bulk commodities, apart from being an energy efficient and economic mode of conveyance and transport. Although beneficial in a multitude of ways, railway fatalities are known to cause tremendous loss, in terms of human lives as well as economic forfeiture.

Methods and results: A 7-month prospective and descriptive type of autopsy study was conducted at the Department of Forensic Medicine and Toxicology, Bowring and Lady Curzon Hospital attached to Shri Atal Bihari Vajpayee Medical College and Research Institute, Bangalore. Out of 98 cases of railway fatalities, maximum number of deaths belonged to 21- 30 years age group i.e., 33 cases (33.67%) with male preponderance (88 cases – 89.79%). The Hindu community contributed to 54 cases (55.10%). Maximum cases occurred in the monsoon season (34 cases - 34.69%) and majority of victims were found dead at the scene (90 cases - 91.83%). The predominant manner of death was suicidal (49 cases - 50%) and the most common cause for death was shock and hemorrhage (53 cases - 54.08%).

Conclusion: Studies such as this, can help in better understanding of railway fatalities which can help policy makers in implementing counteractive measures to prevent accidental deaths, discourage suicidal deaths and to improve railway safety in general.

Keywords: railway fatalities, suicide, mutilation, decapitation

Introduction

The Indian Railways is an integral part of the nation - a network that holds together a population of one billion. The first passenger train set course from Bori Bunder to Thane, on 16 April 1853, carrying 400 invited VIP passengers. A self-propelled social welfare system that has become the lifeline of a nation, Indian Railways has woven a sub-continent together and brought to life the concept of a united India. The railways in India are the largest rail web in Asia and the world’s second largest under one management. With a huge workforce of about 1.65 million, it runs some 11,000 trains every day, including 7,000 passenger trains [1]. The first ever railway accident to kill a passenger happened in 1833 on the Camden and Amboy Railroad at Hightstown, New Jersey [2]. In India, a total of 27,987 cases of railway accidents were reported during the year 2019. These railways accidents rendered 3,569 persons injured and 24,619 deaths. Majority (76.3%) of railways accident cases were reported under ‘Fall from trains / collision...
with people on track’ (21,361 out of 27,987). A total of 1,788 cases of railway crossing accidents were reported which caused 1,762 deaths and 165 persons injured. Uttar Pradesh has reported the maximum cases of railway crossing accidents (851 out of 1,788 cases) accounting for 47.5% of total such accidents [3].

It has been 150 years since Bangalore appeared on the railway map of India. It was on August 1, 1864 that Jolarpet in Tamilnadu was connected to Bangalore Cantonment [4]. Bangalore Division of South – Western Railways came into existence on 11th May 1981. It was predominantly a Metre-Gauge and Narrow-Gauge Division with little of Broad Gauge, but now entire division has only Broad-Gauge route. It has both Electrified and Diesel Traction Routes. The division has 1138.151 route kilometres of track [5]. There are four major railway stations in Bangalore: Bangalore City Railway Station, Bangalore Cantonment Railway Station, Yeshwanthpur Junction Railway Station, and Krishnarajapuram Railway Station.

In India most of the railway tracks run to populated areas and being the cheapest mode of transportation, most trains travel thickly packed. All these factors increase the possibilities of accidents [6]. The railways also provide a convenient mode for suicide and many cases have been reported where a person may deliberately lay across the railway line or even place his head on the line in order to achieve self-destruction [7]. This study aims to understand the socio-demographic profile and pattern of injuries in various cases of railway fatalities.

Material and Methods

The present prospective descriptive type of autopsy study was conducted at the Department of Forensic Medicine and Toxicology, Bowring and Lady Curzon Hospital attached to Shri Atal Bihari Vajpayee Medical College and Research Institute, Bangalore. The study was conducted on the autopsies of railway fatalities from August 1st 2019 to March 23rd 2020 (approximately 7 months). The study period was prematurely shortened due to a nationwide lockdown imposed from March 24th 2020, in view of the COVID-19 pandemic, which resulted in suspension of railway services. After obtaining a detailed history from the police and the relatives, a complete medico legal autopsy was performed, along with study of the hospital case sheets to arrive at the conclusions. This was accompanied by visit to scene of incident coupled with analysis of photographs produced by the police in circumstances where visit was not possible. Data obtained was analysed using Statistical Package for the Social Sciences (SPSS 20).

Results and Discussion

In this study period, 642 autopsies were conducted. Out of these, 98 cases were due to railway fatalities (15.26%).

Maximum number of deaths belonged to 21-30 years age group i.e., 33 cases (33.67%) followed by 20 cases (20.40%) in the 31 – 40 years age group [Figure 1]. This was in contrast to the study conducted by Gunajit Das, Nayan Mani Choudhury, Swaraj Phukon et.al.[8], where the most common age group was between 30 – 40 years.

Male preponderance was observed in the current study with 88 cases – 89.79%. Female cases constituted 10.20% (10 cases). Identity of victims was known in 69 cases (70.40%), while in 29 cases (29.59%) identity of the victim was unknown. Similar findings with respect to sex and identity of victims was observed in the study conducted by T Mohit Kumar Moses and J Ammani [9].

In this study, maximum number of victims belonged to Hindu religion comprising of 54 cases (55.10%), followed by 9 cases (9.18%) belonging to Islam and 6 cases (6.12%) belonging to Christianity. Religion of the victim was unknown in 29 cases (29.59%) owing to the unknown identity of the victims in these cases.

The maximum number of railway fatalities occurred in the monsoon season (June to September) with 34 cases (34.69%), followed by 9 cases (9.18%) belonging to Islam and 6 cases (6.12%) belonging to Christianity. Religion of the victim was unknown in 29 cases (29.59%) owing to the unknown identity of the victims in these cases.

The maximum number of railway fatalities occurred in the post-monsoon season (October and November), 27 cases (27.55%) in winter season (December to February) and 06 cases (6.12%) in summer season (March to May). However, these figures are an inaccurate indicator of the seasonal variation owing to the abrupt shortening of study period. In the study conducted by P Ravi Kumar[10], seasonal distribution was almost uniform throughout the year.
The time of occurrence was not known in 88 cases (89.79%). This can be attributed to the unavailability of history due to victims being found on the railway track long after the incident. Out of the remaining 10 cases where accurate history was available, maximum cases occurred between 6pm - midnight i.e., 6 cases (6.12%), 2 cases (2.04%) occurred between midnight – 6am and 2 cases (2.04%) occurred between 12 noon – 6pm.

Majority of victims were found dead on spot, as evidenced in 90 cases (91.83%). The victims survived for less than 6 hours in 4 cases (4.08%). In 1 case (1.02%), death occurred within 6 – 24 hours and in 3 cases (3.06%), the victims survived for more than 48 hours. P Ravi Kumar [10], in his study, also noted at majority of victims (89.18%) died on the spot.

The most common manner of death observed in this study was suicidal death in 49 cases (50%), followed by accidental death in 20 cases (20.40%). Manner of death was unknown in 29 cases (29.59%). There were no cases of homicidal death during this study period. However, in the study conducted by Manoj Kumar Singha [11], maximum number of cases were of accidental death amounting to 70.7%.

Mutilation of the body of the victim was seen in the form of decapitation in 13 cases (13.26%), separation of upper limb from the trunk in 6 cases (6.12%), separation of lower limb from the trunk in 9 cases (9.18%), transection at the level of the abdomen in 3 cases (3.06%) and transection at the level of the thorax in 1 case (1.02%). Various stages of decomposition changes were observed in 12 cases (12.24%).

Internal organ injuries noted were injury to brain in 62 cases (63.26%), injury to liver in 24 cases (24.48%), injury to spleen in 18 cases (18.36%), injury to lungs in 16 cases (16.32%), injury to intestines in 08 cases (8.16%), injury to kidneys in 08 cases (8.16%), injury to heart in 05 cases (5.10%) and injury to stomach in 01 case (1.02%). Other injuries were also observed such as abrasions in 73 cases (74.48%), lacerated wounds in 64 cases (65.30%), fracture of skull in 64 cases (65.30%), vertebral fractures in 47 cases (47.95%), rib fractures in 45 cases (45.91%), fracture of upper limb bones in 39 cases (39.79%), fracture of lower limb bones in 35 cases (35.71%) and fracture of facial bones in 11 cases (11.22%). Similar organ injuries were noted in the study conducted by Valsala K, C S Sreedevi and Sreelakshmi J [12].

In this study, the most common cause for death was found to be shock and hemorrhage in 53 cases (54.08%), head injury in 29 cases (29.59%), instantaneous due to decapitation in 13 cases (13.26%) and septicemia in 03 cases (3.06%). However, in the study conducted by Manoj Kumar Singha [11], head injury was noted to be the most common cause of death.

Figure 1: Distribution of Railway Fatalities according to age
Conclusion

Greater public awareness and preventive measures must be set in place to prevent accidental railway fatalities caused by pedestrian crossing across railway tracks. Installation of CCTV cameras, increased surveillance by railway personnel and availability of necessary psychological counselling to susceptible individuals may reduce the incidence of suicides. Since most cases of railway fatalities exhibit a high degree of mutilation, the identity of many victims remains unknown. The investigating officer must strive hard to establish identity as far as possible and to ascertain the manner of death through meticulous investigation. The forensic expert must exercise caution with a high index of suspicion while performing autopsies in cases of railway fatalities as foul play can be easily masked in the midst of the gruesome railway injuries.

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References