

Traumatic Spinal Cord Injuries in a Teaching Hospital in Manipur: An Epidemiological Study.

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Received: February 2017

Accepted: February 2017

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ABSTRACT

Background: Spinal cord injuries (SCI) carry significant impact physically, socially, psychologically and emotionally to the individual and to the society. Risk factors involved, mode of injuries, constraints of management and rehabilitation are different in developing regions. **Aims & Objectives:** The current study was aimed to find out the spinal cord injury patient load in the Regional Institute of Medical Sciences (RIMS), which was a teaching medical college in the State of Manipur and also to find out the preventable risk factors associated with spinal cord injuries. **Methods:** Spinal cord injuries presented in RIMS, Imphal during the period 2011-13 were evaluated prospectively. Demographic details, aetiology of injury, initial treatment before referral, method and time taken for transportation and progression of recovery were recorded. **Results:** A total of 52 SCI cases attended RIMS during the two years of study. Most commonly involved age-group was 20-40 years with a male: female ration of 3:1. Fall-related injuries were the most common mode of injury (48.08%). All the patients were transported to hospital without proper immobilization and unattended by trained paramedics in vehicles not suitable for transporting SCI patients. **Conclusion:** SCI is a serious condition, resulting to severe disability or death. Patients who survive often have multiple complications. Yet, the problem of SCI is still not adequately addressed by the existing medical and public health system. There is a strong need to identify risk factors and to take up steps to control them by disseminating information to masses, to train paramedics in rural areas about the initial handling and transportation of suspected SCI patients. Trauma evacuation protocols need to be developed and pre-hospital care of suspected SCI cases need to be developed.

Keywords: Age-wise incidence, Risk factors, Spinal cord injury.

INTRODUCTION

Spinal cord injury is a devastating neurological injury which destroys the neural connections between the cranial part of the central nervous system and the spinal cord caudally of the damaged areas. Depending on the localization and the extent of the injury, this usually leads to a varying degree of physical disability and may even lead to death. It was labelled as "an ailment not to be treated" in the Edwin Smith papyrus 5000 years ago. Unfortunately not much has changed till now in many parts of the world.^[1]

For proper health planning and management of such cases, it was felt necessary to know the magnitude of cases. Further, it was felt important to find out the preventable risk factors for spinal cord injuries.

Aims & Objectives:

The current study was aimed to find out the spinal cord injury patient load in the Regional Institute of Medical Sciences (RIMS), which was a teaching medical college in the State of Manipur and also to find out the preventable risk factors associated with SCI.

MATERIALS AND METHODS

A prospective study was conducted in the Department of Orthopaedics, RIMS, Imphal, Manipur during the period September 2011 to August 2013. All patients reporting to Accident and

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Emergency Department both OPD and IPD of Orthopaedics during this period were assessed and only patients having confirmed traumatic spinal cord injuries were included for the study. Patients who had uncertain diagnoses or having spinal TB/other pathology affecting spine or who died before reaching the hospital were excluded from the study. Detailed background socio-demographic characteristics were taken which was followed by clinical and radiological examinations to ascertain the exact spinal and associated injuries. A few additional questions on the type of pre-hospital care, mode of transfer and time taken during transportation, time of reporting and whether trained personnel accompanied the patient during transportation were also asked. The study participants were subjected to (i) X-ray spine, both antero-posterior and lateral views (ii) CT scan (iii) MRI and (iv) all routine blood and urine examinations. Lastly, the progression of recovery was recorded.

Ethical approval for the current study was obtained from the Institutional Ethics Committee, RIMS, Imphal and informed written consent was taken from each of the study participants.

Only descriptive statistics in terms of percentages and ratio were used for data analysis.

RESULTS

Fifty-two cases of traumatic spinal cord injuries (SCI) which consisted of 39 males and 13 females (M:F=3:1) reported during the whole study period. Majority of the cases belonged to the age-group of 20-39 years (26, 50%), the proportion going down in young people aged <19 years and people aged 40 years or more [Table 1].

Table 1: Age-wise distribution of SCI cases

Age in years	Total	Percentage
10-19	3	5.77
20-29	15	28.85
30-39	11	21.15
40-49	9	17.31
50-59	8	15.38
60-69	2	3.85
≥70	4	7.69
Total	52	100

The most common cause of SCI was fall from height (25, 48.08%) followed by road-traffic accidents (18, 34.61%). The other causes were fall of weight and physical assault [Figure 1].

The occurrence of the SCI cases peaked during the seasons of winter and spring (17 cases in each). The distribution of cases by mode of injury and the seasons of occurrence are depicted in Table 2.

Table 2: Seasonal distribution of SCI cases.

Mode of injury	Number of SCI cases by season			
	Summer (%)	Winter (%)	Spring (%)	Autumn (%)
Fall from height (n=25)	4 (16.00)	9 (36.00)	7 (28.00)	5 (20.00)
RTA (n=18)	5 (27.78)	6 (33.33)	7 (33.89)	-
Fall of weight (n=6)	1 (16.67)	1 (16.67)	2 (33.33)	2 (33.33)
Assault (n=3)	1 (33.33)	1 (33.33)	1 (33.33)	-
Total (n=52)	11 (21.15)	17 (32.69)	17 (32.69)	7 (13.46)

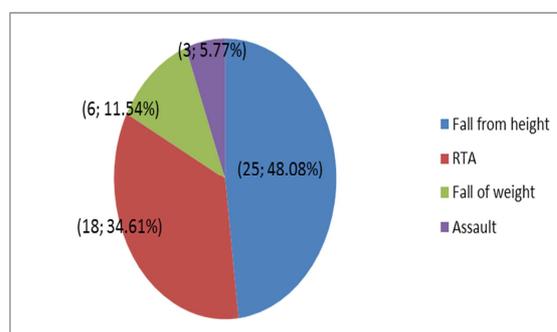


Figure 1: Distribution of SCI cases according to mode of injury.

Out of all the 52 study participants, 23 (44.23%) cases had tetraplegia whereas the remaining 29

(55.77%) had paraplegia. Dorsolumbar spine injury was the commonest with the first lumbar being the most commonly fractured vertebra followed by the twelfth dorsal vertebra. Cervical spine injury was the next common with the most common site of involvement being the fifth and sixth vertebrae. There was associated trauma (head injury, extremity fractures, chest injury, abdominal injury and pelvic injury) in one-fifth of the cases.

44 patients (84.62%) reported to the institute directly whereas the remaining 11 reported of having initial treatment by local quacks. All the patients were transported by vehicles without proper immobilization.

The duration of hospital-stay ranged from five to 50 days. Four cases having cervical injury with

complete neurological deficit died during the study period.

DISCUSSION

SCI occurs most commonly in 20-40 years which is the most active and productive age-group. The male dominance among the cases (M:F=3:1) indicates that risk factors are usually related to outdoor activities. The present study finding of male dominance is comparable with other study findings conducted in other parts of India and abroad.^[2-9]

Unlike in western countries where road-traffic accidents play a major role in spinal cord injuries, fall-related injuries are the commonest mode of injury in developing countries.^[2,3,5-11] The current study finding of fall-related SCIs being the commonest (48.08%) is comparable with the findings of studies conducted in the developing countries.

The current study reveals a very poor infrastructure of transportation of SCI patients in the state of Manipur. This was reflected from the study finding of all the patients being brought to hospital without proper immobilization and unattended by paramedics in vehicles unsuitable for spinal injury patients.

CONCLUSION

Traumatic spinal cord injury is a serious condition, resulting in severe disability or death. Patients who survive often have multiple complications. Most of the SCI victims are young and in their most productive stage of life, causing problems not only to themselves, but also to their family members to suffer emotional and financial hardships. Yet, the problem of SCI is still not adequately addressed by medical and public health system of India. There is a strong need to identify risk factors and to take up steps to control them by disseminating information to masses, to train paramedics in rural areas about the initial handling and transportation of suspected SCI patients. Trauma evacuation protocols need to be developed and pre-hospital care of suspected

SCI cases need to be developed. Regional and national injury centres providing comprehensive treatment and multi-disciplinary rehabilitation services should also be established.

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How to cite this article: Singh LL, Singh KB, Singh CA. Traumatic Spinal Cord Injuries in a Teaching Hospital in Manipur: An Epidemiological Study. *Ann. Int. Med. Den. Res.* 2017; 3(2):OR24-OR26.

Source of Support: Nil, **Conflict of Interest:** None declared