

Management of Spinal Injury: Experience in Rajshahi Medical College Hospital

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Abstract

Spinal injury is a critical neurosurgical emergency requiring prompt and highly skilled management. This study was carried out in the Neurosurgery unit of Rajshahi Medical College Hospital on 465 cases of spinal injury over 6 years. The age range of the patients was 4 to 72 years and most commonly involved age group was between 20 to 40 years. Male to female ratio was 5:1. Cervical spines were most commonly (41%) affected by injury followed by thoracic (13%), lumbar (36%), cervico-thoracic (4%) and lumbo-thoracic spines (6%). Common causes of spinal injury were fall from height (44.30%), RTA (22.15%), heavy weight bearing (13.11%) and assault with gun shot (7.74%). Paraparesis was the most frequent (55%) clinical presentation due to spinal injury followed by quadriplegia (45%). Two third of the patients were managed conservatively and 8% required operative treatment. Mortality rate was 12% and 8% patient refused to take treatment.

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Introduction

Historically, 5000 years ago surgical papyrus of Egypt described spinal cord injury as ailments not to be treated.¹ Over the past few decades renewed interest in the treatment of spinal cord injuries resulted in improvement of emergency care, initial medical and surgical as well as rehabilitation of the crippled patients.² Treatment of dorso-lumbar fractures is a controversial subject, trial of various methods, concluded that a combined anterior and posterior approach with short segment fusion and stabilization is most appropriate.^{2,3} The principal of treatment of an unstable cervical spine injury protection and decompression of the cord realignment and stabilization.¹ The corner stone of

contemporary spinal column injury management are:⁴ (i) rapid detection (ii) immobilization (iii) early reduction of the spinal deformity and (iv) pharmacological therapy to facilitate neuronal function. The main focus of this study is to observe the neurosurgical role in the management of patients with spinal trauma.

Patients and Methods

This is a descriptive study done from January 1995 to December 2000. All the patients with spinal injury admitted during the said period are included in the study. Detailed history from each patient was taken; competent doctors performed meticulous clinical examination and neurological assessment. Relevant investigations were done as far as possible. Data were analyzed accordingly.

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Result

Out of 9736 patients admitted in the Neurosurgery unit of Rajshahi Medical College Hospital during the study period extending from January 1995 to December 2000, four hundred sixty five (5%) had sustained spinal injuries. Most (56%) of the patients were young in the age range of 21 to 40. Male to female ratio was 5:1. Cervical spines were most commonly (41%) affected by injury followed by thoracic (13%), lumbar (36%), cervico-thoracic

(4%) and lumbo-thoracic spines (6%). Common causes of spinal injury were fall from height (44.30%), road traffic accidents (22.15%), heavy weight bearing (13.11%) and assault with gun shot (7.74%). Paraparesis was the most frequent (55%) clinical presentation due to spinal injury followed by quadriplegia (45%). Two third of the patients were managed conservatively and 9% required operative treatment. Mortality rate was 12% and 8% patient refused to take treatment.

Table-I Causes of Spinal injury (n=465)

Causes of Spinal injury	No. of Patients	Percentage (%)
Fall from height (FFH)	206	44.30
Road traffic accident (RTA)	103	22.15
Heavy weight bearing	69	14.84
Assault & Gun shot injury	36	7.74
Machinery injury	24	5.16
Diving	17	3.65
hanging	10	2.15

Table-II Sites of Spinal injury (n=465)

Sites of Spinal injury	No. of Patients	Percentage (%)
Cervical	193	41.50
Lumbar	167	35.91
Thoracic	60	12.90
Thoraco-lumbar	27	5.80
Cervico-thoracic	18	3.70

Table-III Clinical features of Spinal injuries and Investigations (n=465)

Clinical features	No. of Patients	Percentage (%)
Paraparesis/Paraplegia	255	55
Quadriplegia/ Quadriplegia	210	45
Neurogenic bladder	112	24.1

Table-IV: Treatment in Unstable Spinal injuries (n=465)

Treatment	No. of Patients	Percentage
<input type="checkbox"/> Conservative	333	71.61%
<input type="checkbox"/> Operative	42	9.03%
<input type="checkbox"/> Refused to get treatment	37	8%
<input type="checkbox"/> Death	53	12%

Table-V: Year wise occurrence of Spinal injury (n=465)

Year	Number of patients admitted in NSU	Spinal injury
1995	586	36
1996	871	41
1997	1980	85
1998	1283	70
1999	2583	97
2000	2433	136
Total	9736	465

Discussion

Spinal Cord injuries can be related to the Mechanical insult, biochemical derangement and haemodynamic changes¹. It is difficult to assess the degree of spinal cord injury pathology from clinical evaluation of neurologic deficits. Bohlman¹ showed, out of 300 Spinal injuries, 3 patients had normal cord microscopically. So it would seem appropriate to reduce fractures and dislocations immediately.

Treatment of neurologic deficit in spinal injured patients is done with immobilization, medical stabilization (PO₂, PCO₂, CVP, MAP, monitoring etc), spinal alignments, operative decompression if there is proved cord compression and finally with spinal stabilization until osseous healing².

In gun shot wound CSF leak out require operative dural closure and or removal of shell fragment of bullet compressing the neural structure¹. Anterior decompression and stabilization is indicated with anterior compression, which ensures stabilization and enhances fusion rates, reduces the complication rates in complete spinal injuries³. Dorsal and lumber spinal injuries were surgically managed by late anterior decompression and stabilization done by bone graft in-patients who had incomplete neurological deficit^{4,5}.

In spite of the absence of sublimation or dislocation, we must have MRI scan in every patient who has history of suspected spinal injuries⁶. Tele medicine is recognized as a

lifesaver in the more remote and poor regions of the world and satellite link provides access to better management now a days⁷.

Conclusion

Early surgical treatment is the choice for unstable injury of spinal cord for early ambulation and or to avoid complications of spinal injury and rehabilitation.

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