International Journal of Orthopaedics Sciences

ISSN: 2395-1958
IJOS 2016; 2(3): 12-15

www.orthopaper.com
Received: 04-05-2016
Accepted: 05-06-2016

Dr Rashmi Sharma
PGT, Department of Physiology, Narayan Medical College, Sasaram, Bihar, India.

Dr Arnab Sinha
Orthopaedic Surgeon, HOPE Spinal Cord Injury Hospital, Mithapur, Patna, Bihar, India.

Correspondence
Dr Arnab Sinha
Orthopaedic Surgeon, HOPE Spinal Cord Injury Hospital, Mithapur, Patna, Bihar, India.

How early is too early? Can we mobilise complete spinal cord lesion patients on conservative management earlier

Dr Rashmi Sharma and Dr Arnab Sinha

Abstract
In Spinal cord injury (SCI), the outcome of neurotrauma depends on the quantum of injury suffered by type patients at the time of the actual accidents. We do provide Stability by either providing a fixation or by immobilization. About neurorecovery, we are not sure how much of the recovery is due to the natural recovery of the cord and how much is due to our decompression. Avoidance of complications and thus improving the Quality of Life (QoL) is the foremost important thing in the management. We tried to compare the complications seen on mobilising at 3 week with those mobilised at 6 weeks in patients on conservative treatment. Each of the patients were followed for a period of 8 weeks with serial radiographs taken at the end of every week to see any significant radiological decline. Retrospectively from our records, we chose 20 patients who underwent conservative treatment and were mobilized at the end of 6 weeks (as per convention). On comparing the complications seen on mobilising at 3 weeks with the retrospective study of case records complications seen in those mobilised at 6 weeks, a 20% decrease in the incidence of pressure sores, no incidence of depression (using the Beck Depression Inventory II) as compared to 25% in control group, 30% decrease in pulmonary and renal complications, 100% compliance, significant decrease in bed occupancy and hospital stay was observed in those mobilised at 3 weeks and all these were achieved without any significant radiological decline. 2 patients could not be mobilized at 3 weeks due to pain and were eventually mobilized at 6 weeks.

Keywords: spinal cord injury (SCI), mobilisation, pressure sores, depression, Beck Depression Inventory II, pulmonary and renal complications, bed occupancy

Introduction
With the advancing civilisation, rapid industrialisation, urbanisation of villages and associated violence in the society, different causes of spinal cord injury (SCI) have come into notice and enhanced the etiology of SCI. The outcome of neurotrauma depends on the quantum of injury suffered by type patients at the time of the actual accidents. We do provide Stability by either providing a fixation or by immobilization. About neurorecovery, we are not sure how much of the recovery is due to the natural recovery of the cord and how much is due to our decompression. We must remember that the majority of mortality and morbidity is due to the complications arising of rather than due to the primary injury itself. So, avoidance of complications and thus improving the Quality of Life (QoL) is the foremost important thing in the management. So important is to realize this fact that the theme of the last Asian Spinal Cord Network conference 2015 was “Quality of life and inclusion after SCI”,

An incomplete injury keeps hope alive and such patients can go back to the society, being near normal. On the other hand, if SCI is complete, the chances of recovery are bleak and the ultimate fate of the patient depends on the amount of care in the hospital and rehabilitation measures taken in the wards. The priorities in terms of treating these patients include, first of all, survival of the patient: addressing life threatening injury/ resuscitation/intensive care followed by, preventing further injury to the cord, preventing systemic complication, counselling of patients and family, surgical stabilization/spinal decompression/ conservative management. These are followed by recovery and rehabilitation and retraining and return to society as a productive individual.

Mobility in complete spinal cord injury patients- According to Textbook of Orthopedics for Fractures In Adults by Rockwood and Green bracing is required for 8 weeks in cervical injuries and 12 weeks in thoracolumbar injuries before full weight bearing can be allowed. In

In thoracolumbar injuries bracing can be used to immobilize stable burst fractures. A form-fitting TLSO or extension cast is usually prescribed for 3 months. Once the brace is fitted, the patient should have standing Xrays in the brace to ensure stability. Look for substantial loss of height or increase in Kyphosis, as they indicate underlying posterior ligamentous insufficiency. If the alignment is minimally changed, log roll can be stopped and the patient can be mobilised.

Mobilisation depends upon whether the spine has been stabilized or not. If it is fixed, as soon as the next day the patient can sit but if the patient is on conservative management, at least 4 – 6 weeks waiting period is conventionally advised. This waiting period gives time to the injured vertebrae & soft tissues around it to heal and avoid further damage to the cord. But on the other hand, we are faced with the problems of prolonged confinement like Pressure Sores, pulmonary and renal complications, depression (often overlooked), prolonged bed occupancy, financial and social loss to the patient and family and even loss in faith on treating surgeon.

Aim

To compare the complications seen on mobilising at 3 week with those mobilised at 6 weeks amongst SCI patients on conservative treatment. Can we reduce this waiting period by thereby the complications arising thereof, by mobilising these SCI patients earlier?

Material and methods

We selected 20 patients of complete SCI who underwent conservative treatment as the study group. Reasons for their conservative t/t were – refusal to surgery, economically very weak, medically not fit for surgery. A Cervical Cord Injury was allowed to sit with his braces, at the end of 3 weeks. A paraplegic was allowed to use a wheel chair with his braces at the end of 3 weeks. Subsequent rehabilitation to recover the Activities of daily Living (ADL) was carried on as routine in both. Monitoring- Each of these patients were followed for a period of 8 weeks with serial radiographs taken at the end of every week to see any significant radiological decline. Comparison- Retrospectively from our records, we chose 20 patients who underwent conservative treatment and were mobilized at the end of 6 weeks (as per convention). They formed the control group and were compared with the patients in the study group with respect to the Complications.

Results

On comparing the complications seen on mobilising at 3 weeks with the retrospective study of case records complications seen in those mobilised at 6 weeks, a 20% decrease in the incidence of pressure sores, no incidence of depression (using the Beck Depression Inventory II) as compared to 25% in control group, 30% decrease in pulmonary and renal complications, 100% compliance, significant decrease in bed occupancy and hospital stay was observed in those mobilised at 3 weeks and all these were achieved without any significant radiological decline. 2 patients could not be mobilized at 3 weeks due to pain and were eventually mobilized at 6 weeks.

Distribution of patients

Level	Study group	Control group	Total
Cervical	8	8	16
Thoracic	2	2	4
Lumbar	10	10	20

Xray Pictures

3 weeks 8 weeks

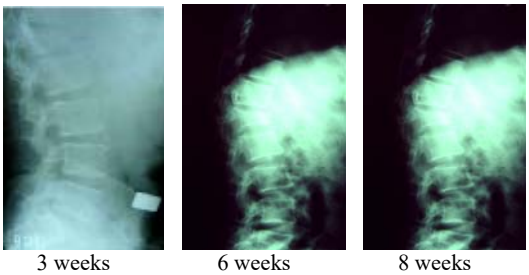
Case 1: D 12 fracture, Complete Paraplegia on conservative management.

3 weeks 8 weeks

Case 2: C 5 fracture, Complete Paraplegia on conservative management.

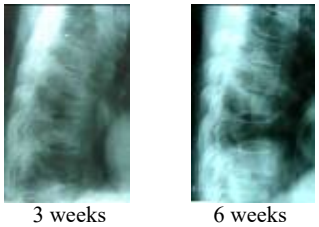
3 weeks 6 weeks 8 weeks

Case 3: L 1 fracture, Complete Paraplegia on conservative management.



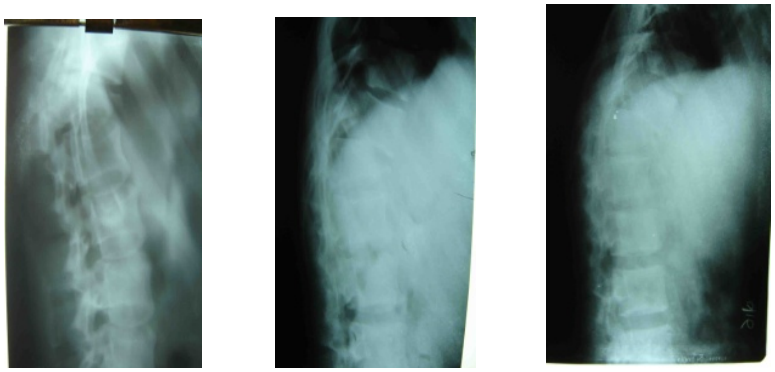
3 weeks 6 weeks 8 weeks

Case 4: L 2 fracture, Complete Paraplegia on conservative management.



3 weeks 6 weeks

Case 5: L 2 fracture, Complete Paraplegia on conservative management.



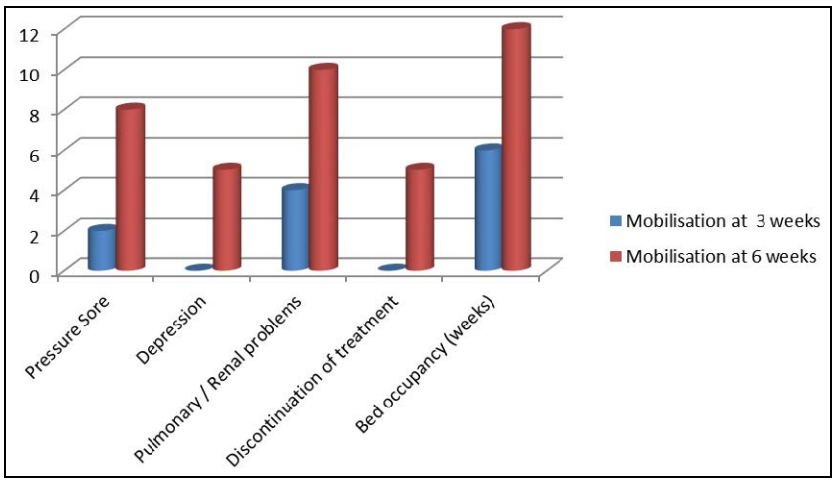
3 weeks 6 weeks 8 weeks

Case 6: D 12 fracture, Complete Paraplegia on conservative management.

Results

did the complications reduce?	MOBILIZED AT 3 WEEKS *	MOBILIZED AT 6 WEEKS
Pressure sore	2	8
Depression (The Beck Depression Inventory II)	0	5
Pulmonary / renal problems	4	10
T/t discontinued	0	5
Bed occupancy	6 weeks	12 weeks

***(2 patients could not be mobilised at 3 weeks and were eventually mobilised at 6 weeks**



Review of Literature and Conclusion

There is a considerable controversy on the efficacy of conservative treatment and the need for surgical intervention. Need for additional stability, prevention of neurological deterioration, attainment of canal clearance, prevention of kyphosis and early relief of pain are the commonly quoted reasons for surgical intervention. However, a careful review of literature does not validate any of the above arguments. In a review of 42 patients with stable thoracolumbar burst fractures, it has been reported that nonoperative treatment, consisting of bed rest or body casts, offered promising results. All patients were neurologically intact, and the average Kyphosis was 26 degrees. In contrast to the outcomes reported by some authors pitching for operative management for compression fractures, there was no association between the degree of deformity and persistent back pain. No neurologic deterioration was noted, and 88% of the patients returned to work. Recent reviews of the results of nonsurgical treatment of 38 patients who sustained thoracolumbar burst fractures without neurologic deficit, most patients were treated with

early ambulation without a brace. The average follow-up was 4 years. Mean local Kyphosis increased from 20 degrees to 24 degrees, although persistent pain was present in only 10% to 15% of cases. No correlation was shown between kyphotic deformity or canal compromise and clinical outcome. In another study the results of nonoperative treatment using an orthosis in 60 patients with thoracolumbar burst fractures without neurologic deficit, the average follow-up was 42 months. After treatment, 91% of patients had a satisfactory functional outcome, and 83% had little or no pain. The average initial kyphosis was only 6 degrees, which worsened to 8 degrees at final follow-up. Presenting the results of brace treatment in 24 neurologically intact patients with so-called unstable thoracolumbar burst fractures, only 10 fractures demonstrated interspinous process widening that would suggest PLC injury and true instability, and nine patients returned to work after treatment was completed. In a paper titled Influence of socio-economic status on access to different components of SCI management across Indian population assessed the influence of financial constraints on access to different components of spinal cord injury (SCI) management in various socio-economic strata of the Indian population. It was concluded that financial constraints affected all components of SCI management in all except the upper group. The results of their survey suggested that a very large percentage of the Indian population would find it difficult to access comprehensive SCI management and advocated the extension of essential medical coverage to unaided upper lower, lower middle and upper middle groups. And this was a paper of last year.

Except few patients, a longer stay in an well-equipped hospital betters the recovery of his physical skill, but, in a country like ours, where treatment is neither covered by insurance (mostly) nor funded by Government (mostly), the proper time of mobilisation/discharge of the patient is a dilemma.Financial constraints affect all components of SCI management. Hospital Beds are limited and the number of patients are increasing. Patient's recovery depends on so many factors that a strict time frame cannot be maintained.

This study shows that SCI patients can be mobilized after 3 weeks from their beds even if they are on conservative treatment. If they spend another 3 weeks for recovery of ADL they can be discharged by 6 weeks. But, recovery of ADL and thus discharge may be delayed if the patient develops any complication like Bed sore, Urinary tract infection, Respiratory problem it will need extra time.

We Salute Dr Ludwig Guttman his concept of wheelchair sports and would conclude that we don't want to swing the pendulum towards conservative treatment but just think about those patients who are being confined to bed 4-6 weeks before being mobilized. Taking reference to this study we can undoubtedly advocate that they can be mobilized earlier at 3 weeks with many added advantages.

References

1. Weinstein. Thoracolumber burst fractures treated conservativeluy: A long term followup Spine, 1988.
2. Boukje M. No evidence for the effectiveness of bracing in patients with thoracolumbar fractures A systematic review Acta Orthop, 2009.
3. Rajasekaran S. Thoracolumbar burst fractures without neurological deficit: the role for conservative treatment. Eur Spine J, 2010.
4. Payer M. Unstable burst fractures of the thoraco-lumbar junction: treatment by posterior bisegmental correction/fixation and staged anterior corpectomy and titanium cage implantation Acta Neurochir, 2006.
5. Willén J. The natural history of burst fractures at the thoracolumbar junction. J Spinal Disord. 1990.
6. Shen WJ. Nonsurgical treatment of three-column thoracolumbar junction burst fractures without neurologic deficit. Spine, 1999.
7. Chow GH. Functional outcome of thoracolumbar burst fractures managed with hyperextension casting or bracing and early mobilization. Spine, 1996.
8. Tropiano P. Functional and radiographic outcome of thoracolumbar and lumbar burst fractures managed by closed orthopaedic reduction and casting. Spine, 2003.
9. Elgafy H. Three-column ligamentous extension injury of the thoracic spine: a case report and review of the literature. Spine, 2007.
10. Chabra. Influence of socio-economic status on access to different components of SCI management across Indian population Spinal Cord, 2015.
11. Kumar S. Patna University 2003-2006 Predictablity of neurorecovery after acute SCI
12. Acharya S. Patna University Feasablity of early mobility in SCI patients during conservative management, 2007-2010.
13. Sinha DK. Patna Medical College Hospital Manual of Patna Model for care of SCI patients, 1992-1994.
14. Sinha A. The rationale of spinal fixation in SCI: A review of literature Journal of Bihar Orthopaedic Association. 26(2).
15. Sinha A. Current concepts regarding timing of surgery and role of decompression in spinal fixation of SCI patients: A review of literature Journal of Advanced Medical and Dental Sciences Research. 2015.