

Sohag experience in treatment of Dorsolumbar fractures according to Thoracolumbar injury classification and severity score(TLICS)

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Abstract

Background:The Thoracolumbar Injury Classification and Severity Score (TLICS) was developed to improve injury classification and guide surgical decision making, yet validation remains necessary. This study evaluates the functional, clinical and radiological outcome of patients with thoracolumbar spine trauma (TLST) treated according to the TLICS.

Aim of the work:To validate the efficacy of Thoracolumbar injury classification and severity score (TLICS) in orthopaedic emergency department at sohag university hospitals.

Patients and methods:The TLICS was prospectively applied to a consecutive series of patients (30 cases) treated for TLST between October 2016 and October 2017. Patients with a TLICS score more than 4 points were surgically treated, whereas patients with a TLICS score of less than 4 points were conservatively managed. Those with a score of equal 4, group were managed conservatively and the other were operated. The primary outcome was the American Spinal Injury Association Impairment Scale (AIS)⁽¹⁾.

Results:The decision taken according to TLICS either conservative if the final score <4 or operative if >4. Conservative treatment in the form of rest and dorsolumbosacral brace. Operative in form of posterior fixation with or without decompression. Transpedicular fixation and decompression was needed in 10 cases (33.33%) because they were suffering from neurological insult. The mean age was 34 years. There were a marked improvement in angle of kyphosis, vertebral height loss and Oswestry disability index. No patient had neurological worsening during the follow-up.

Conclusion:Thoracolumbar injury and severity score is valid and safe for management of thoracolumbar fractures and has good reliability.

Introduction

Each year, there are approximately 5 million new vertebral fractures worldwide⁽²⁾. Most of these fractures involve the thoracolumbar or lumbar spines. The thoracolumbar junction, due to its mechanical transition zone, and the lumbar spine, due to its absence of stabilizing articulations with the ribs, lordotic posture and more sagittal oriented facet joints, are vulnerable for involvement in spinal injuries⁽³⁾. Burst fractures occur frequently in high-energy traumas which are most commonly

associated with falls and traffic accidents⁽⁴⁾.

Aim of the study

To validate the efficacy of Thoracolumbar injury classification and severity score (TLICS) in orthopaedic emergency department at sohag university hospitals

patients and methods

The study included 30 patients (13 male, 17 females) suffering from thoracolumbar fractures attending at department of Orthopedics and

traumatology, Sohag university hospitals, Sohag University from October 2016 till October 2017.

For All patients, the following data were obtained:

1. Age
2. Sex
3. Mode of trauma
4. Level of fractured vertebra
5. Associated injuries
6. Neurological status according to ASIA⁽¹⁾

After the completion of the hospital treatment patients were discharged and follow up of cases at 1,3& 6 months by:

- Clinical and neurological evaluation of each patient by Oswestry Disability index(ODI)⁽³⁾ , and visual pain analogue score(VAS).
- Radiological evaluation at (1, 3& 6 months) to assess :
 - ..Angle of kyphosis using **cobb method**⁽⁵⁾
 - ..Vertebral height loss

Results

-The study was performed in Orthopaedic and traumatology department at Sohag University Hospital in the period from October 2016 to October 2017 and included 30 patient (13 female&17male) who were suffering from thoracolumbar fractures .

Distributions of TLICS among studied populations

TLICS	Number (%)
TLICS<4	9 (30.00%)
TLICS=4	8(26.67%)
TLICS>4	13 (43.33%)

Distributions of morphology among studied populations

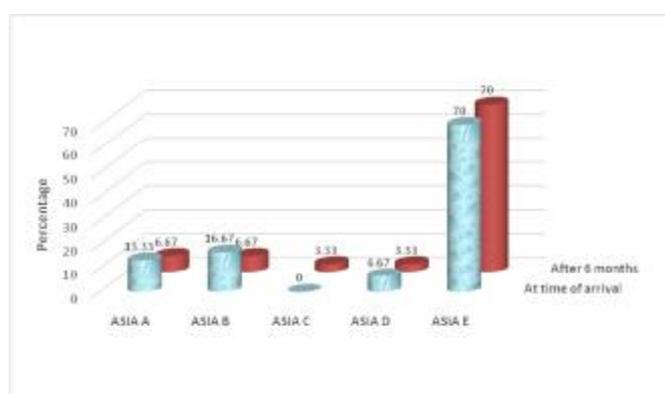
Morphology	Number (%)
Burst	23 (76.67%)
Compression	7 (23.33%)

Distributions of neurology among studied populations

Neurology	Number(%)
Neurologically free	21(70.00%)
Incomplete paraplegia	4(13.33%)
Complete paraplegia	5(16.67%)

Neurological affection before and after treatment

Neurological affection	At time of arrival	After 6 months	P value
ASIA A	4 (13.33%)	2 (6.67%)	<0.0001
ASIA B	5 (16.67%)	2 (6.67%)	
ASIA C	0	4 (3.33%)	
ASIA D	0	1 (3.33%)	
ASIA E	21 (70.00%)	21 (70.00%)	



Discussion

• In our study there were 9 cases (30%) with TLICS score < 4 (two of them with score 2 with morphological affection burst type and 7 cases with score 1 with morphological affection compression type with intact neurological and PLC) and all of them treated conservatively , 8 cases (26.67%) with TLICS score = 4(2 cases treated conservatively with morphological affection burst type and PLC of suspected injury and 6 cases were operated ,all of them with morphological affection burst type and also PLC suspected injury) and 13 cases (43.33%) with TLICS score >4 (with morphological affection burst type and neurological affection in form of incomplete and complete spinal cord injury and PLC status was injured in 8 cases and suspected in 5 cases) all were operated

Joaquim et al,(2014)⁽⁶⁾ reported that a total of 65 patients were treated ,In 37 patients , TLICS was 3 and the patients were treated nonsurgically(group 1).The remaining 28 patients with TLICS of 4 or more underwent surgical treatment (group 2).In group 1, 28 patients were neurologically intact with compression or burst fractures (TLICS of 1 or 2 , median 2).In group 2, TLICS ranged from 4 to 10(median 7).

• In our study, there was improvement in kyphotic angle. Mean kyphotic angle preoperative was= 13.5⁰ and post-operative mean angle =9.15⁰ with statistically significant P value which was 0.008 George Sapkas et al⁽⁷⁾. out of 40 patients with unstable thoracolumbar fractures, 20 patients treated by short segment fixation and the others treated by long segment

screws fixation no statistically significant difference was noted between the short segment and long segment instrumentation group. These results suggest that LS and SS stabilization are equivalently able in reducing the segmental kyphosis and the vertebral body deformation

• VAS has statistically significant changed in the study with P value <0.0001 before and after treatment .

In our study ,the result of those with TLICS score , cases conservatively managed with the following parameters:

results for patients whose TLICS score 4, the different parameters were :

	Admission	Follow up	P value
VAS pain	7.8,0.8	6.4,1.1	0.058
Kyphosis angle	35,2.5	30.3,6.4	0.218
Height loss%	74.3,6.6	76.7,5.1	0.573

Difference shown due to decreased number of cases managed conservatively in the study. Our cases were treated and classified according to the TLICS. Thoracolumbar injuries scoring 4 were treated conservatively.

Out of our study it was possible to be evaluated the conservative treatment in patients scoring 4 and the results were satisfied.

Conclusion

Thoracolumbar injury and severity score is valid and safe for management of thoracolumbar fractures and has good reliability.

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