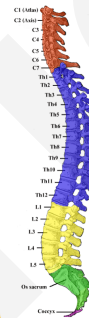


Employment Outcomes Following Thoracolumbar Fractures: Long Term Follow Up Greater Than 5 Years

Elliot Kimber, Jacob Allman, Davor Dasic, Fabian Wong, Michael McCarthy



Spinal Fractures

- Thoracolumbar fractures are the most common form of spinal fractures worldwide, representing 90% of all spinal fractures (1-4).
- The cause of this is due to the biomechanics of the spine itself, with the thoracolumbar region being a junction between a flexible lumbar spine and a more rigid thoracic spine (3, 5).
- This puts this area at a higher risk of being injured in a high-speed motor vehicle collision or a fall from height i.e., high energy trauma in younger patients (2, 4).

2016-2017

Previous Research

There is a wide range of results for patients returning to work with thoracolumbar fractures

- Ranging from 50-87% with a mean of 71.4% and SD of 13.4% (6,7)

Most of the research focuses on short term outcomes

- Ranging from 6 months – 2 year follow up periods

Marek et al looked at a mean follow up of 4.7 years (Range 2.6 – 7.3) (8)

Aims and Objectives

- Retrospective analysis of long-term employment and functional outcomes post thoracolumbar fracture with a greater than 5 year follow up period
- Comparison between operative and conservative treatment on long term outcomes

Methods

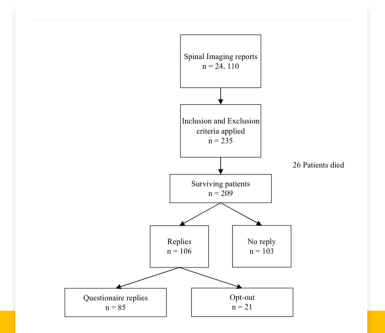
- Surviving patients were identified from Cardiff and Vale databases with a traumatic thoracolumbar fracture between and including the dates of 01/01/2013 and the 31/12/2017
- CT and/or MRI spinal reports were requested through the A&E and orthopaedic departments
- Questionnaires were sent out via post and available emails
- At 1 week and 2 weeks patients had follow up calls
- At week 2 a reminder letter was sent
- ISCO-08 classification of jobs was used to classify job skill level
- Data was analysed using SPSS55 (version 27)

Table 1: Inclusion and Exclusion Criteria

Inclusion Criteria	Exclusion Criteria
• Treated within the local area • Acute or Traumatic fracture/s and/or dislocation/s of the thoracolumbar spine • Aged 18-65 years at time of injury • Conservative or Surgical intervention	• Osteoporotic / insufficiency / stress fractures, infection, pathological fractures • AO fractures (AO spine thoracolumbar injury classification) • Cervical fractures without thoracolumbar involvement • Sacral fractures without thoracolumbar involvement

Inclusion/ Exclusion Outcomes

- Total radiology reports = 24,110
- Total patients included = 235
- Surviving patients included = 209
- Respondents = 106
 - Opt in = 85
 - Opt out = 21
- Non respondents = 103



Questionnaire Data Gathered

Table 2. Questionnaire Data

	Time of injury	Post-Injury > 5 years
Demographics	Age Sex Spinal level/s injured Mechanism of injury	- - - -
Employment	Employment status Job type Hours worked per week Surgical or conservative treatment Therapies/management received	Employment status Job type Hours worked per week - -
Treatment		
Physical Signs	Pre-existing spinal related pain Pre-existing motor weakness	Persisting spinal pain since injury Persisting motor weakness since injury
Satisfaction	-	Satisfaction with overall treatment
Questionnaire		AO Spinal PROST
Data gathered via questionnaire >5 years post injury		

Employment:

1. Were you employed prior to your spinal fracture?

Yes ☐ No ☐ If no go to question 6

1.b) Prior to the injury what was your occupation?

1.c) Please specify how many hours you worked in a week

2. Following your injury did you return to the same occupation?

Yes ☐ No ☐ If not why

3. How much time did you receive off work?

4. Did you receive any specific advice from the medical team treating you about your return to work?

0 indicates a level at which you are **NON-FUNCTIONAL**

100 indicates the level **BEFORE** the accident, no matter how well or poorly you functioned before the accident.

25. Household activities (such as cleaning in and around the house, doing laundry or preparing a meal)

I am Non-Functional 0 10 20 30 40 50 60 70 80 90 100 I function as well as BEFORE my injury

Neurology:

Q21. Prior to your injury did you experience any Numbness, Tingling or Paralysis in your legs or back? (Please tick the corresponding boxes)

Back ☐ Left leg ☐ Right leg ☐ None ☐

Q22. Prior to your injury did you have any weakness in the following movements? (Please tick the corresponding box)

Left ☐ Right ☐ Both ☐ None ☐
Raising Leg Left ☐ Right ☐ Both ☐ None ☐
Kicking Ball with bent Knee Left ☐ Right ☐ Both ☐ None ☐
Raising foot with heel on the floor Left ☐ Right ☐ Both ☐ None ☐
Pointing toe towards the sky Left ☐ Right ☐ Both ☐ None ☐
Pressing foot on a car pedal Left ☐ Right ☐ Both ☐ None ☐

able emails

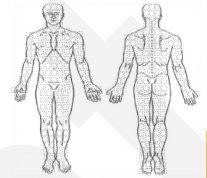


Table 4. Baseline Clinical and Radiological Characteristics in respondents and non-respondents

Characteristic	Total Cohort n=209	Respondents n=85	Non-Respondents n=124	p Value
Clinical characteristic				
Mean age at injury (SD) (years)	52.0 (12.6)	44.0 (12.7)	38.9 (13.5)	0.028
Mean follow up time (SD) (years)	8.0 (1.6)	7.9 (1.5)	8.1 (1.6)	0.436
Sex				
Male Sex [n (%)]	138 (66)	60 (71)	78 (63)	0.249
Female Sex [n (%)]	71 (34)	25 (29)	46 (37)	
Treatment				
Surgical [n (%)]	108 (52)	52 (61)	56 (45)	0.023
Conservative [n (%)]	101 (48)	33 (39)	68 (55)	
Mechanism of Injury				
Fall [n (%)]	122 (58)	50 (59)	72 (58)	0.956
RTC [n (%)]	76 (36)	31 (36)	45 (36)	
Crush [n (%)]	11 (5)	4 (5)	7 (6)	
Classification of Fracture				
A [n (%)]	139 (66)	56 (66)	83 (67)	0.956
B [n (%)]	52 (25)	22 (26)	30 (24)	
C [n (%)]	18 (9)	7 (8)	11 (9)	
Number of Levels				
Single level fractures	144 (69)	53 (62)	91 (73)	0.091
Multi-level fractures	65 (31)	32 (38)	33 (27)	

Results – Demographics

- 33 (39%) conservatively treated
- 52 (61%) Surgically treated
- Falls (59%) were most common mechanism of injury
- Most common fracture sites were L1 (23%) and T12 (17%)
- 66 (78%) patients employed prior to injury

More surgically treated patients responded to the study

Table 5. Employment outcomes of previously employed individuals comparing surgical and conservative groups

	Total Cohort n=66	Surgical n=43	Conservative n=23	p Value
Work Status				
Returned to same/ increased skill level [n (%)]	47 (71)	29 (67)	18 (78)	0.355
Unemployed or returned to a reduced skill level [n (%)]	19 (29)	14 (33)	5 (22)	
Working Hours				
Same or increased hours [n (%)]	35 (53)	20 (47)	14 (61)	0.455
Reduced hours [n (%)]	14 (21)	10 (23)	5 (22)	
Unemployed [n (%)]	17 (26)	13 (30)	4 (17)	

Conservative vs Surgical Outcomes

Comparison of previously employed patients (N=66)

Work Status

- 47 (71%) patient returned to same/ increased skill level
- 19 (29%) were unemployed/ returned to a reduced skill level

Working Hours

- 35 (53%) kept the same hours/ increased their hours
- 14 (21%) reduced their hours
- 17 (26%) unemployed at follow up

No significant difference between conservative or surgically treated patients

AO fracture Outcomes

Comparison of the previously employed patients (N=66)

Work Status

- AO classification C fractures had the poorest outcomes with 50% returning same/ increased level of work

Working Hours

- AO classification C fractures had only 33% of patients keeping the same/ increasing their hours

No significant difference between conservative or surgically treated patients

Table 6. Employment outcomes of previously employed individuals comparing AO classification of Fractures

	Total Cohort n=66	A * n=43	B * n=17	C * n=6	p Value
Work Status					
Returned to same/ increased skill level [n (%)]	47 (71)	30 (70)	14 (82)	3 (50)	0.303
Unemployed or returned to a reduced skill level [n (%)]	19 (29)	13 (30)	3 (18)	3 (50)	
Working Hours					
Same or increased hours [n (%)]	35 (53)	23 (53)	9 (53)	2 (33)	0.606
Reduced hours [n (%)]	14 (21)	9 (21)	5 (29)	1 (17)	
Unemployed [n (%)]	17 (26)	11 (26)	3 (18)	3 (50)	

*AO spine thoracolumbar injury classification system

Results – Other Outcomes

Pain (N=85)

- 58 (68%) had thoracolumbar pain at follow up
- No significant difference between Surgical and Conservative groups (P=0.675)

Neurology (N=68)

- 36 (53%) had no new neurology at follow up
- 13 (19%) had objective neurology/ paralysis at follow up
- No significant difference between Surgical and Conservative groups (P=0.206)

PROST Score

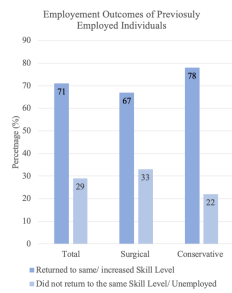
- Lifting / carrying were worst affected activities with mean score of 54 (SD=35)
- No significant difference between Surgical and Conservative groups (P=0.200)



Conclusion

>5-years following a traumatic thoracolumbar fracture most individuals return to employment. There was no significant difference between the severity of the fracture or how patients were treated on their employment outcomes

- 71% (47) of the 66 previously employed patients returned to the same level of work
- 52% (34) of the 66 previously employed patients returned to the same or increased hours of work



Thank you

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