ORIGINAL ARTICLE

Study on Return to Work Following Surgery on Patients with Thoracolumbar Fracture

Saravanan Shanmugam, MS Ortho, Zairul Anuar Kamarul Bahrin, MS Ortho, Zulkefli Atan, MS Ortho, Ramanathan Ramiah, FRCS

Department of Orthopedics, Hospital Raja Permaisuri Bainun, Ipoh

SUMMARY

Objective: The aim is to find rate of return to work of surgically treated thoracolumbar fracture patients and to know if back pain, compensation issues or neurological status influence this rate. Methodology: A retrospective cohort study analysing the patients with thoracolumbar fractures treated surgically from January 2008 till December 2009. Results: Neurological status is the main factor deciding return to work in this group. Back pain and compensation related issues were not statistically significant in influencing return to work. 74% of patients in this group return to work. Conclusion: Return to work among the patients with thoracolumbar fracture, treated surgically, is mainly dependent on neurological status and not the compensation related issues or back pain.

KEY WORDS:
Return to work, spine surgery

INTRODUCTION

Thoracolumbar fractures are one of the commonest spine fracture seen in our daily orthopaedic practice. Motor vehicular accident, industrial accident and fall from height had been the common causes. The main aim of the treatment of this fracture is to get the patient back to his previous functional status. However return to previous work of these patients relieves financial burden to the patient, his or her family and government. Only a few studies have been published with variable results. Huler[1] had studied thoracolumbar fracture patients with no neurological deficit and found 82% of the previously working patients actually went back to a gainful employment. In another study, Knop C *et al.*[2] noticed only 50% of the thoracolumbar fracture patients were back to physical work and 50% of the patients were back participating in sports. Leferink VJ *et al.*[3] studied this group of patients with no neurological deficit and 87% of his patients went back to work. 50% of those went back to work has to modify their work. The important factor that decides whether the patient goes back to work is the neurological deficit. Pain limits the patient's ability to do his previous job without job modification[4]. Burnham Robert S[5] identified that high level spinal injuries more likely associated with neurological injuries and polytrauma, therefore these patients are less likely to return to work. However he also found that back pain is the main cause preventing low level spine injury patients to return to work. Employment rates after thoracolumbar fracture with intact neurological status range from 82% to 96% during follow up times ranging from 2 to 20 years after the injury[1,6]. High level spinal injuries have been associated with unemployment as seen by Castle R in his study[7]. Knight et al suggests return to work is delayed by operative treatment compare to non-operative treatment among the lumbar burst fracture[8].

MATERIALS AND METHODS

This is a retrospective cohort study. List of patients with thoracolumbar fractures treated surgically from January 2008 till December 2009 was collected from our operation theatre record books. The patients' medical records were traced, analysed and they were interviewed by phone or directly during follow up at one year after the injury. These patients' neurological status was graded using the ASIA scoring system. Patients with ASIA E scoring were labelled as no neurological deficit and those with ASIA scoring A, B, C and D were labelled as neurological deficit. Those with single and multiple root injuries were grouped as with neurological deficit. The work status, (either return to work or not) and Visual Analogue Scale (VAS) to assess back pain (VAS 1 to 4 as mild and 4 to 10 as severe), compensation related claim (Social Security Organisation (SOCSO) or other insurance) were determined before and one year after the surgery. They had variety of occupations and we only looked if they were back to their previous job. All these patients were treated with posterior instrumentation only (Figure 1 and 2). Those excluded were pre-trauma unemployed patients and patients with unknown work status after the surgery. Some of the patients were foreigners and these patients went back to their country after surgery which made it difficult to find their post-operative work status. Statistical analysis was performed using the SPSS. Chi square test was used to assess the level of significance. Significance was defined as p value < 0.05.

RESULTS

Total number of patients was 67. 36 patients were excluded due to pre-morbid unemployment, and incomplete data. 31 patients were included in this study. 84% of these 31 patients were male. 25 (81%) out of 31 patients were in a younger age group (age less than 50 years old) and 19 patients (61%) had no neurological deficit on presentation. Burst fracture was the commonest type of injury (68%), followed by fracture dislocation (19%) and the rest of the cases had flexion distraction injury. All patients underwent long posterior spinal instrumentation with or without decompression.

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Corresponding Author: Saravanan Shanmugam, Hospital Raja Permaisuri Bainun, Ipoh, Orthopaedic, Jalan Hospital, Ipoh, Perak 30990, Malaysia
Email: sarashan01@yahoo.com.my

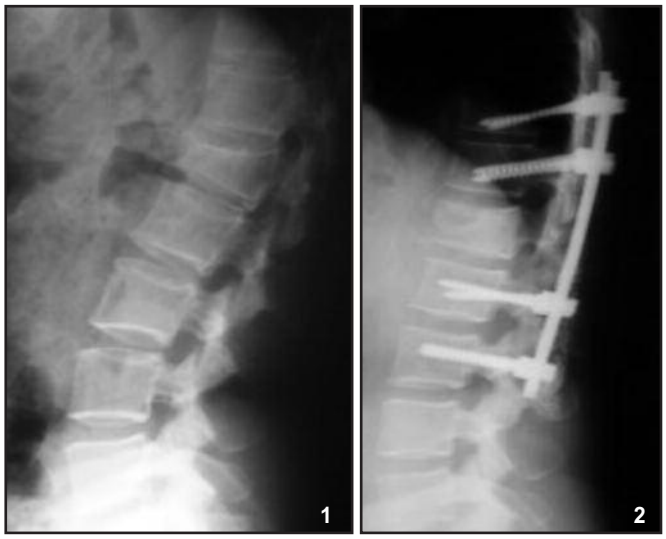

Fig. 1 & 2: Burst fracture of L1 treated with long segment posterior instrumentation with 8 pedicle screws and 2 rods.

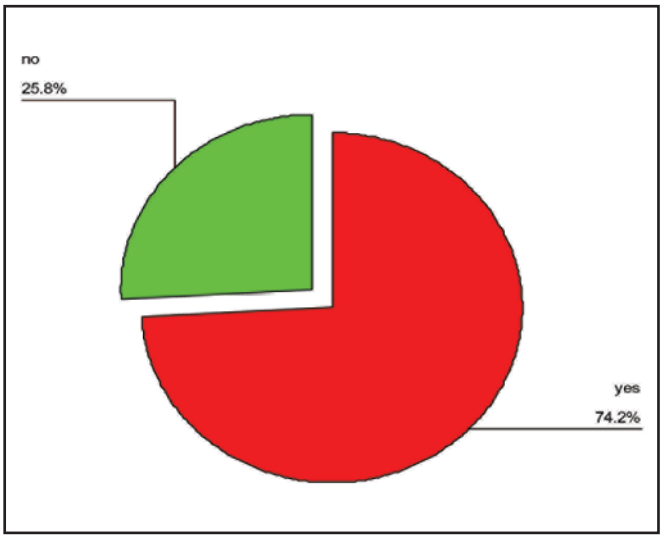

Fig. 3: Pie chart showing returned to work status of the 31 patients.

Fig. 4: Relationship between numbers of patients returned to work and neurological status.

At one year follow up, 23 patients (74 %) returned to work (either fully or partially) (Figure 3). Out of 31 patients, 19 had no neurological deficit, only one patient out of these 19 patients returned to work. The rest of the 12 patients, out of the 31 patients, had neurological deficit. Among these 12 patients, only five returned to work (p value <0.05) (Figure 4). All the 31 patients had mild back pain (VAS less than 4), which suggest that back pain is not the influencing factor of returning to work. Ten from the 31 patients (32%) had compensation related issues (claiming for SOCSO or insurance); seven (70%) patients of this patients returned to work. Whereas 16 (76%) out of 21 patients with no compensation related issues returned to work. There is no statistical significant difference noticed on this factor.

DISCUSSION

The success of thoracolumbar fracture lies in full return of the patient to his premorbid functional status. Many factors have been postulated to influence the return to premorbid functional status. McLain RF4 has clearly noted that level of injury, hardware failure, extent of surgical dissection, or construct pattern do not influence the work status after the injury. He found that the neurological deficit is the single most important factor that determines the post injury work status. We noticed that the neurological deficit does strongly influence the rate of return to work similar to McLain's paper[4]. The pain score was 4 and less in all our 31 patients. The presence of pain noticed in all the patients that returned to work and this clearly showed that pain is not an influencing factor in return to work in this group. Even though we noticed many patients with compensation related issues (claiming for SOCSO or insurance) came back with either pain or neurological deficit few months after the surgery, the compensation related issues were not statistically significant to suggest its influence on return to work.

Return to work after spine trauma is influenced by many factors. Through this study we noticed that presence of neurological deficit greatly prevent return to work. However it is not deniable that other factors too influence these patients return to work. These patients pre-morbid job nature is another factor which might affect the return to work [9]. Patients pre-morbidly worked as manual labourers might be difficult to return to his previous job. Therefore pre-spinal cord injury employment does influence the post- spinal cord injury employment status [10].

Job modification may facilitate the neurologically handicapped patients return to a lighter job. This can only be achieved when the employer is willing to help the unfortunate employee by finding and placing him in a suitable job in his work place. Besides that the patients also should have motivation to return to any job that will suit his

current capability. Employers and the patients must be supported by the family and friends in returning to work. Patients with no neurological deficit, with compensation issues in mind may be poorly motivated to return to work. However 'Back to Work Program' which is conducted by some insurance scheme in our country may be beneficial in returning the patients to their old or a modified job.

We did not looked into single root, multiple root and cord injury patients separately. We grouped them all into patients with neurological deficit and no neurological deficit. We were not looking into their amount of compensation which only will be decided by the insurance and SOCSO bodies. However we did not analyse the duration of medical leave allowed by the employer even though this factor may influence the initiative of these patients to return to work. These are the limitations of our study and further study on these points will be necessary in future.

CONCLUSION

Major factor that decides the return to work after surgery among the patients sustained thoracolumbar fracture is the neurological status. Back pain and the compensation related issues are not significantly influence the return to work. However study with bigger number of patients may provide stronger evidence.

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