

Spinal Fractures in Fused Spines: Nonsurgical Treatment is a True Alternative

Henrik Constatin Backer¹, Patrick Elias, Michael A Johnson, John Edward Cunningham², Peter Turner

¹Royal Melbourne Hospital, ²Mr John Cunningham

INTRODUCTION: Spinal fractures in fused spines are typically type B or C fractures which affect all three columns. The two most common causes include ankylosing spondylitis (AS) and diffuse idiopathic skeletal hyperostosis (DISH) in a ratio of about 8:1. In the near future the incidence of both conditions will likely increase due to demographic changes. Given the unstable nature of the fractures, operative treatment is usually recommended as the mortality rate in nonsurgically treated patients is reported to be up to 51% (cf 32% operative). However, these studies include patients who suffer from a variety of different comorbidities and lack in reporting the cause of death.

The purpose of this study was to investigate the mortality and complication rate and demographics of these patients. We hypothesize that a majority of fractures can be treated nonsurgically and the high mortality rate reported in literature is primarily based on selection bias, selecting nonsurgical management for the sicker patients.

METHODS: Between 2019 and 2021 a retrospective study was conducted of a major trauma center. All patients who presented to our trauma center with a spinal fracture of a fused spine who received nonsurgical treatment were included. X-rays were analyzed for the fracture pattern and patient charts were searched for complications, mortality, time to follow up, and neurological deficit. For deceased patients the comorbidities were observed and the likely cause of death noted.

RESULTS:

A total of 48 patients were found. One patient was excluded as the patient died before surgery leaving 47 for final inclusion. The mean age was 79.5 ± 11.0 years and primarily males (66%) were affected. In the majority of cases the thoracic spine was affected (85.1%) followed by the lumbar spine (8.5%) and the cervical spine in 6.4%. All fractures were of AO/OTA type B and no neurological deficit was observed in any. All were managed in a High Taylor brace. The patients suffered from a median of 5 comorbidities. The mean follow up was 168.6 ± 238.9 days and fusion was obtained in all patients.

A total of 13 patients (27.7%) died at a mean age of 87.1 ± 9.9 years after a mean of 157.1 ± 158.1 days following their injury. Considering those patients who passed away within the first 6 weeks after trauma, 6 patients were identified (12.8%). One patient suffered from chronic congestive heart failure, one from an acute delirium, one from end stage colon cancer, and one presented with a subdural and subarachnoid hemorrhage. The mean age of these six patients was 91.8 ± 3.8 years.

DISCUSSION AND CONCLUSION: The current guidelines recommend surgery in B or C type fractures chiefly to avoid the high mortality rate of nonsurgical treatment. This study shows that the mortality rate of nonsurgical treatment is 12.8% and the patients are, on average, above the age of 90 years. Therefore, nonsurgical treatment should be taken into consideration as the mortality rate in other studies may be overestimated.