Geriatric vertebral compression fracture: Characterizing use and trends for prescribed thoracic/lumbar orthoses

Scott J. Halperin B.S., Meera M. Dhodapkar B.A., Jay Moran M.D., Seongho Jeong M.D., Jonathan N. Grauer M.D., Arya Varthi M.D.

1Department of Orthopaedics and Rehabilitation, Yale School of Medicine, New Haven, CT, USA
Scott.Halperin@Yale.edu

Disclosures: Financial disclosures/conflicts of interests: Scott J Halperin (Jane Danowski Weiss Family Foundation Fund); Meera M Dhodapkar (Richard K. Gershon, M.D. Fund at Yale University School of Medicine, Associate Editor Visual Abstracts North American Spine Society Journal); Jonathan N Grauer (North American Spine Society Journal Editor-in-Chief)

Introduction:
Geriatric vertebral compression fractures are the most common fracture associated with osteoporosis. While bracing may be considered, its use is variable and trends for utilization have not been characterized. Using a large national database, the current study aimed to examine and characterize bracing trends for geriatric thoracic/lumbar compression fracture management.

Methods:
The current study utilized M157 PearlDiver database from 2015-2021. Patients who suffered thoracic/lumbar compression fractures (5th thoracic to the 5th lumbar vertebra [T5-L5]) were identified. Exclusion criteria included patients less than 65 years old or a diagnosis of infection or neoplasm within the 90-days before the compression fracture. Patients who received a brace within 90-days after the initial diagnosis of thoracic/lumbar compression fracture were abstracted and characterized overall and by fracture level. Multivariable logistic regression was performed for the following variables to assess for correlation with bracing trends: age, sex, Elixhauser-Comorbidity Index (ECI) and geographic region (Northeast [NE], South [SO], Midwest [MW], and West [WE]).

Results:
In total 290,388 patients met inclusion criteria and suffered a thoracic/lumbar compression fracture (greatest incidence at the thoracolumbar junction). Of these, bracing was only prescribed for 4,263 (1.5%), with the greatest difference of 1.5% by level (Figure 1). Independent predictors of bracing were geographic region (relative to northeast, west WE odds ratio [OR] 1.31, Midwest OR 1.20), younger age (OR 1.27 per decade), female sex (OR 1.17), and ECI (OR 1.02 per 2-point increase) (p<0.05 for each).

Discussion:
Overall, the current study examined over a quarter of a million patients who suffered a T5-L5 compression fractures and found that only 1.5% of patients were braced. This low percentage, and the fact that greatest predictor for bracing was non-clinical (geographic region), highlight the inconsistency of this practice and may be useful for developing treatment algorithms.

Significance/Clinical Relevance:
Overall, the current study examined over a quarter of a million patients who suffered a T5-L5 compression fractures and found that only 1.5% of patients were braced. This low percentage, and the fact that greatest predictor for bracing was non-clinical (geographic region), highlight the inconsistency of this practice and may be useful for developing treatment algorithms.

Figure 1: This stacked horizontal bar graph shows visually the percentage of brace (black) versus no brace (grey) by vertebral level from Table 1.