

Classifications and Level of Evidence Trends from the Most Influential Literature on Thoracolumbar Burst Fractures: A Bibliometric Analysis

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Abstract

There are different classification systems and management algorithms for thoracolumbar burst fractures that each offer some clinical utility, but there is no consensus as to whether any of these approaches is ideal.

The database Web of Science was searched, and exclusion and inclusion criteria were used to extract the top 100 cited articles on the thoracolumbar burst fractures. The effects on type, number, and other variables were separated into four different eras as defined by four major classification publications.

30 out of the top 100 articles represent level 1 or 2 evidence. The most influential journal was *Spine*, accounting for 35 articles and 4,537 citations. The highest number of articles (53) was published between the years 1995-2005, culminating with the Thoracolumbar Injury Severity Classification Score (TLICS) paper. After 2005, there was an increase in average citations per year. Following 2013, the number of highly influential articles decreased to 0.75 per year, and systematic reviews became a larger proportion of the literature produced. There was a statistically significant increase in the level of 1 and 2 evidence articles with time. The predictive value of time for higher levels of evidence was only seen in the pre-2005 years (AUC: 0.717, 95% CI 0.579-0.855, $p = 0.002$).

In 1994, two articles marked the beginning of an era of highly influential thoracolumbar burst fracture literature. Published in 2005, the TLICS score was associated with a preceding increase in level of evidence (LOE) and productivity among the top influential articles. Following 2005, the literature saw a decrease in productivity and an increase in systematic review/meta-analysis. These trends represent an acceleration of research productivity culminating in the 2005 TLICS article.

Abbreviations: Thoracolumbar (TL), Randomized Controlled Trial (RCT), Level of Evidence (LOE), Thoracolumbar Injury Severity Classification Score (TLICS), Load Sharing Classification (LSC), Receiver Operating Characteristic (ROC), Area Under the Curve (AUC).