The Reliability Of The Thoracolumabar Injury Classification And Severity Score Amoung Orthopedic Surgeons At Different Levels Of Training

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Introduction

Despite the increased use of Thoracolumbar Injury Classification and Severity Score (TLICS), it has not yet gained universal acceptance. In the Emergency Department, the least experienced orthopedic surgeon (Intern/Junior Resident) often performs the initial evaluation of a patient with thoracolumbar spine trauma. They must then relay reliable information to Staff spine surgeons is imperative for efficient care and initial treatment decision-making. Our objective was to examine the reliability of TLICS between orthopedic physicians from intern to staff level surgeons.

Methods

Ten cases of thoracolumbar spine fractures were reviewed and scored using TLICS by eight evaluators: intern (n=2), junior level orthopedic resident (n=3), senior level resident (n=2), spine surgeon (n=1).   Each participant evaluated the same cases on three different occasions. Statistical analysis with Intraclass Correlation Coefficient (ICC) was calculated assessing the inter- and intra-observer reliability of the TLICS classification.

Results

Interobserver reliability yielded moderate to excellent agreement between evaluators in all three rounds of testing.   Neurologic injury produced the highest ICC values, ranging from 0.820 to 0.902. Fracture morphology demonstrated the lowest interobserver ICC scores with moderate agreement of 0.449 and 0.423.   Intraobserver ICC scores improved with increasing levels of training. The intern evaluators recorded the lowest intraobserver ICC values, while the staff surgeon scored the highest. Staff surgeon ICC values all ranked above 0.800 for excellent intraobserver agreement. Fracture morphology produced the lowest intraobserver ICC values, ranging 0.586 to 0.683. The total severity score yielded the highest intraobserver ICC values of 0.768 to 0.920 for interns through senior residents.

TLICS Interobserver Reliability Values

Variable	Round 1	Round 2	Round 3	Average
Severity Score	.754	.853	.868	.822
Morphology	.449	.423	.720	.530
Neurologic Status	.820	.902	.846	.856
PLC Integrity	.575	.671	.580	.608

TLICS Intraobserver Reliability Values

Variable	Interns	Juniors	Seniors	Staff
Severity Score	.768	.872	.920	.933
Fracture Morphology	.586	.653	.683	.905
Neurologic Status	.763	.856	.846	.827
PLC Integrity	.620	.827	.876	1.00

Conclusions

The use of Thoracolumbar Injury Classification and Severity Score (TLICS) demonstrated moderate to excellent intra- and inter-observer reliability among all training levels. Senior Residents and Staff demonstrated improved ICC scores in higher training levels, however, interns and Junior Residents were able to reliably classify spinal trauma injuries. This suggests that the TLICS scheme is a reliable way to successfully communicate thoracolumbar injury information from junior residents or midlevel providers to Staff spine surgeons'.

Learning Objectives

By the conclusion of this session, participants should be able to: 1) Describe the thoracolumbar injury classification system, 2) Discuss the inter- and intra-observer reliability of the TLICS for interns and residents

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