

POSTER PRESENTATION PP10

Correlation between Balance, Gait Speed, Endurance, Functional Mobility and Functional Ambulation in AIS D Spinal Cord Injury at The Pre-Discharge Stage

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ABSTRACT

Background and Objectives: Functional ambulation in spinal cord injury (SCI) is commonly evaluated using multiple clinical outcome measures, including balance, gait speed, functional mobility, and endurance. However, these assessments reflect different constructs, and their relationship with functional ambulation level remains unclear in clinical rehabilitation practice, particularly in individuals with AIS D who typically demonstrate higher ambulatory potential. Evaluating these measures at a standardized pre-discharge stage is essential for accurate interpretation of functional readiness and discharge planning. This study aimed to determine the relationship between balance, gait speed, functional mobility, endurance, and functional ambulation level in patients with AIS D spinal cord injury at the pre-discharge stage. **Methods:** A cross-sectional observational study was conducted involving 24 patients with AIS D spinal cord injury undergoing rehabilitation. Outcome measures were collected at the pre-discharge stage prior to discharge. Assessments included the Berg Balance Scale (BBS), 10- Meter Walk Test (10MWT), Timed Up and Go (TUG), 6-Minute Walk Test (6MWT), and Walking Index for Spinal Cord Injury II (WISCI II). Spearman's rank correlation coefficient was used to analyse relationships between clinical measures and functional ambulation. **Results:** At the pre-discharge stage, significant correlations were observed between clinical performance measures and functional ambulation (WISCI II). Balance (BBS) demonstrated the strongest positive correlation ($r = 0.71$, $p < 0.001$), followed by functional mobility (TUG: $r = -0.67$, $p < 0.001$) and endurance (6MWT: $r = 0.63$, $p = 0.001$). Gait speed (10MWT) showed a moderate positive correlation ($r = 0.52$, $p = 0.009$). The negative correlation between TUG and WISCI II indicates that longer completion time is associated with lower functional ambulation level. **Conclusion:** At the pre-discharge stage, functional ambulation in patients with AIS D spinal cord injury is highly correlated with balance, functional mobility, endurance, and gait speed. Balance demonstrated the strongest relationship with functional ambulation, highlighting its critical role alongside dynamic performance-based measures in discharge planning and functional evaluation in SCI rehabilitation.

Keywords: Spinal cord injury; AIS D; Functional ambulation; Balance; Gait speed; Rehabilitation

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