Analysis and Comparison of the Psychometric Properties of Three Balance Measures for Stroke Patients

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Background and Purpose—This study compared the psychometric properties of three clinical balance measures, the Berg Balance Scale (BBS), the Balance subscale of the Fugl-Meyer test (FM-B), and the Postural Assessment Scale for Stroke patients (PASS), in stroke patients with a broad range of neurological and functional impairment from the acute stage up to 180 days post onset.

Methods—One hundred and twenty-three stroke patients were followed up prospectively using the three balance measures on the 14th, 30th, 90th, and 180th days after stroke onset (DAS). Reliability (inter-rater reliability and internal consistency) and validity (concurrent validity, convergent validity, and predictive validity) of each measure were examined. A comparison of the responsiveness of each of the three measures was made based on the entire group of patients and three separate groups classified by degree of neurological severity.

Results—The FM-B and BBS showed a significant floor or ceiling effect at some DAS points, while the PASS did not show these effects. The BBS, FM-B, and PASS all had good reliability and validity for patients at different recovery stages after stroke. The results of effect size demonstrated fair to good responsiveness of all three measures within the first 90 DAS, but, as expected, only a low level of responsiveness at 90 to 180 DAS. The PASS was more responsive to changes in severe stroke patients at the earliest period after stroke onset, 14-30 DAS.

Conclusions—All three measures tested showed very acceptable levels of reliability, validity, and responsiveness for both clinicians and researchers. The PASS showed slightly better psychometric characteristics than the other two measures.

Key Words: balance, cerebrovascular disorders, reliability, validity, responsiveness