Balance disability
after stroke

Balance disability is common after stroke. The aims of this study were to investigate the frequency of balance disability; to characterize different levels of disability; and to identify demographics, stroke pathology factors, and impairments associated with balance disability. The subjects studied were 75 people with a first-time anterior circulation stroke; 37 subjects were men, the mean age was 71. 5 years and 46 subjects had left hemiplegia. Prospective hospital-based cross-sectional surveys were carried. The subjects' stroke pathology, demographics, balance disability, function, and neurologic impairments were recorded in a single testing session 2 to 4 weeks after stroke. A total of 83% of the subjects had a balance disability; of these, 27% could sit but not stand, 40% could stand but not step, and 33% could step and walk but still had limited balance. The most severe balance disability had more severe strokes, impairments, and disabilities. Weakness and sensation were associated with balance disability. Demographics, stroke pathology, and visuospatial neglect were not associated with balance disability. The most severe balance disability had the most severe strokes, impairments, and disabilities. Demographics, stroke pathology, and visuospatial neglect were not associated with balance disability.

They were excluded if they had another mobility limiting neurological condition or bilateral weakness.

Data were collected in a single measurement session at the hospital bedside or physical therapy treatment gym by 1 of 4 assessors (2 senior neurologic physical therapists and 2 geriatricians). The demographics, neurologic impairments, functional and pathologic data were obtained. The average of

the scores for the upper and lower limbs is taken to provide a total score for the hemiplegic side; the total score was used in this study.

Thirteen subjects scored the maximum of 12 on the BBA (step-ups without hand support) and could complete all of the balance tasks. Of the remaining 62 with balance disabilities, 17 could sit but not stand , 25 could stand but not step and walk (, and 20 could step but still had limited balance. There was marked heterogeneity among subjects with different levels of balance ability . There were no differences in the demographic characteristics or the side of stroke for subjects with different levels of balance disability (sitting, standing, or stepping balance). Subjects in the sitting balance group had more severe neurologic impairments, disabilities, and strokes than subjects with limited standing or stepping balance. Conversely, subjects in the stepping balance group were less severely impaired and disabled and had milder strokes than subjects with limited sitting or standing balance. There were significant differences among the 3 groups for weakness, independence, and severity of stroke. More subjects in the sitting balance group had neglect and sustained a hemorrhage (rather than infarct) than subjects in the standing balance group or the stepping balance group. Subjects in the sitting balance and standing balance groups had worse sensation than subjects in the stepping balance group. Individual linear regression modeling revealed that none of the demographic or stroke pathology factors (age, sex, premorbid disability, side of stroke, or stroke type) was associated with balance disability. All of the impairments (weakness, sensation, and neglect) were significantly associated with balance disability.

Although rehabilitation of balance and mobility often has been identified as an important goal of stroke rehabilitation, this is the first detailed descriptive study of balance disability after stroke. We found that more than 80% of subjects who had first-time strokes, who were admitted to the hospital, and who met the inclusion criteria had balance disability in the acute phase, with similar numbers of subjects having limited sitting balance, standing balance, and stepping balance. There were marked differences in the severity of stroke, impairments, and disability among subjects with different levels of balance ability. Subjects in the sitting balance group had more severe strokes and impairments and were more dependent than subjects in the standing balance and stepping balance groups, and subjects in the stepping different balance abilities, a measure of balance disability may be a useful predictive tool in the clinical setting and for use as a stratification tool for further research. Moreover, level of balance ability (sitting, standing, or stepping balance) is meaningful to clinicians, patients, and their relatives, and a robust measurement tool (BBA) that is quick and easy to use has been developed. Brunel Balance Assessment (BBA) is a reliable, valid measure of balance disability after stroke. It was good that. Informed consent was obtained from all participants. Reliability and validity for use with people with stroke have been demonstrated.

The study failed to find a relationship between age, sex, or side of stroke and balance disability. It is important to know which factors influence a patient's balance abilities most strongly so that they can be targeted during rehabilitation. A total of 21 subjects had visuospatial neglect. A total of 55 subjects had no previous disability.

Spasticity was not included in the present study because of the lack of a robust measurement tool, but many physical therapists believe this to be an important contributor to loss of balance and function after stroke. Tests of eyesight and cognitive factors, such as speed of information processing, also could be considered. The relationship between balance impairments and balance disability also needs to be clarified by including measures of balance impairments in future, more detailed studies. Although the above details, it must be emphasized that all people who were admitted to over the course of 1 year, who met the inclusion criteria, and who were willing to participate. I therefore believe that the findings have general relevance to the population of people with balance disability after first-time stroke.

The present study has indicated that weakness and sensation have the most impact on balance.

A surprising finding was that neglect was not associated with balance disability. This finding indicates that neglect may be related to the severity of balance disability because it is associated with other impairments (weakness and sensory loss); therefore, people with neglect probably have poor balance. There was no blindness in the study and no external validity was measured. Previously 55 participant's were no any disability

Further studies with a power calculation to ensure that sufficient numbers are recruited to detect balance group had milder strokes, less impairment, and greater independence than subjects in the other groups. Given the heterogeneity among subjects with a difference, should one exist, are

needed to investigate this issue. Future studies need to consider which other factors may affect balance disability.

Large sample are needed to further test the hypothesis that balance level in the acute stages could be a useful, meaningful prognostic indicator of recovery.