The Walking Index for Spinal Cord Injury (WISCI) is a gait assessment for people with spinal cord injury (SCI) developed primarily for clinical trials. It broadly categorises the ability to walk 10 m using a 21-item hierarchical scale which takes into account need for physical assistance, braces, and walking aids. The lowest score of 0/20 reflects an inability to stand or walk; the highest score of 20/20 represents an ability to walk 10 m without walking aids, braces, or physical assistance. The WISCI was developed in 2000 using a Delphi technique to reach consensus among an international group of experts (Ditunno et al 2000). This provides it with face validity. The appropriateness of the hierarchical order of the WISCI had been verified in a study of 77 patients undergoing rehabilitation following initial injury. Over the course of rehabilitation, 80% of patients demonstrated progression upwards through the WISCI scores (Ditunno et al 2007). However, considerable redundancy in the 21 items was noted with the majority of patients just moving between one of five scores (0, 8, 14, 17, and 20) (Ditunno et al 2008). The WISCI has excellent intra-rater and inter-rater reliability. In addition it has criterion validity. For example, it correlates reasonably well with the 6-Minute walk, Timed Up and Go, and 10 m walk tests (van Hedel et al 2005). It also correlates with lower extremity motor scores, although not so well shortly after injury (Ditunno et al 2007, Ditunno et al 2008). Reports vary of the correlation of the WISCI with more global measures of disability such as the Spinal Cord Independence Measure (SCIM), Functional Independence Measure (FIM®), Barthel Index, and the Rivermead Mobility Index. Although statistically it often appears that the WISCI correlates well with some of these measures, this is accounted for in part by clustering of WISCI scores at the two extremes (ie, at 0/20 or 20/20). Closer examination reveals anomalies such as patients with scores of 5/7 on the locomotor item of the FIM® attaining 7 quite different WISCI scores ranging from 0/20 to 20/20. This mainly reflects the different emphasis of the different scales.

Instructions to the client and scoring: Scoring is simple and therapists do not require extensive training to administer the WISCI, although they do need to be familiar with the definitions of devices, braces, and assistance and there is some ambiguity with respect to how hard therapists should push patients.

There is no real alternative to the WISCI which focuses on capacity for ambulation. The closest alternatives measure disability and include the four gait-related items of the SCIM and the Spinal Cord Injury Functional Ambulation Inventory (SCI-FAI). The main advantage of the WISCI over these alternatives is its simplicity.

Commentary

The WISCI is a convenient and simple way of summarising ability to walk with one score providing an overall picture of gait. It does not, however, provide the full picture: the scoring does not take into account quality of movement, nor does it consider factors such as the energy cost, speed, or cosmesis of gait. It is also limited because it only considers the ability to walk 10 m on the flat. This gives the WISCI a ceiling effect because patients able to independently walk 10 m get a top score even though they may not be able to negotiate curbs or stairs, or walk outside. There are also a few other anomalies with the scoring system. For instance, not all combinations of physical assistance, braces, and walking aids are covered within the 21 items and there are some combinations of these elements which therapists would rarely use. However, the biggest problem with the WISCI is the clumping of all braces as one. For example a simple ankle orthosis is given the same weighting as a reciprocal gait orthosis (RGO). Consequently, someone with extensive paralysis of the lower limbs walking with an RGO and two Canadian crutches receives the same score (12/20) as someone requiring a single ankle-foot orthosis for toe clearance and Canadian crutches for stability. Nonetheless, the WISCI is increasingly popular and used routinely in a number of spinal injury units around the world. It has also been used in a few notable and large multicentered SCI trials.

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References