OBJECTIVES

Cerebral Palsy (CP) is the most common disorder resulting in physical disability in children. Physical therapy is the most important modality because children's disabilities primarily entail motor dysfunction. In clinical and research purposes, it is important to determine the effects of therapeutic interventions on motor function with reliable and valid tests. Several evaluation measures are available to assess gross motor development in children with CP, the Gross Motor Function Measure (GMFM) is the best known and most used around the world. The purpose of this study was to provide valuable information for clinical uses and research purposes by fully estimating the relative and absolute reliabilities and responsiveness of the GMFM-88 for children with CP.

RESULTS

Ten raters scored GMFM-88 of 84 children (mean age: 3.7 ± 1.9 years, range, 10 months to 9 years, 9 months) (Table 1) from video records across all GMFM levels to establish intra-rater reliability. Two raters participated to assess intra-rater reliability. Responsiveness was determined from three additional assessments after the baseline assessment. The inter- and intra-rater intraclass correlation coefficient (ICC) with 95% confidence interval, standard error of measurement (SEM), smallest real difference (SRD), effect size (ES), and standardized response mean (SRM) were calculated.

DISCUSSION

It becomes clear that the use of ICC alone would be insufficient for a reliability analysis because it does not enable measuring actual differences. To our knowledge, the SRD has not been documented previously for the GMFM-88. In the present study, we calculated the SRD for the GMFM-88 in each dimension and the total score, providing a threshold for interpreting changes in GMFM-88 scores over time. Also, it is important that a function-measuring tool have the ability to detect changes over time, referred to as responsiveness. In the present study, we classified the children into two subgroups by severity of functional impairment identifying GMFM levels III–V to analyze the responsiveness of GMFM-88. The results showed large responsiveness of the GMFM-88 goal total score as reflected in changes after 6 months regardless of functional severity (the GMFCS levels I and II vs. III–V; ES = 0.8, 0.9 and SRM = 2.6, 2.8, respectively).

The limitations of the study are to be conducted at one center and the age range of the subject population was limited, so the results should not be generalized. In the future, a multi-center study with a broader range of subject age should be conducted.

CONCLUSIONS

In summary, we investigated the reliability and responsiveness of the GMFM-88 for a relatively large sample of children with CP. The results indicated reliability and responsiveness.