

Reference Norms for Functional Gait Assessment Scores in Children with Cerebral Palsy - an Observational Research Study Protocol

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Abstract

The Functional Gait Assessment (FGA) is a 10-item gait assessment based on the Dynamic Gait Index. Gait disorders are very common in children with cerebral palsy (CP). To document the improvement in the gait of children with CP it is necessary to perform a proper functional analysis of the gait before and after the intervention. The present study will be intended at finding the normal value of FGA in children with CP in the age group from 5 to 12 years.

Keywords: Cerebral Palsy; Children; Gait Assessment; Normal Scores.

Introduction

The assessment of a child with CP before preparation of treatment protocols consist of a combination of medical history, physical examination, functional assessment, medical imaging, observational and instrumented gait analysis, and assessment of patient and family goals [1, 2]. Gait assessment is an important part of the assessment as it will be deciding the ambulatory outcomes. FGA scale has been proved to have acceptable reliability, internal consistency, and concurrent validity over the other balance measures used for vestibular disorder patients. Intraclass correlation coefficients (ICC) has been found to be 0.86 and 0.74 for interrater and intrarater reliability of the total FGA scores and internal consistency of the FGA scores was found to be 0.79 when it was used for subjects with vestibular disorders [3]. FGA is recommended over the Dynamic gait index in adolescent population as it does not assess higher-level balance abilities of adolescents. The FGA (German version) has been proved to be a reliable and valid tool to assess functional gait performance of patients in subacute stages after stroke [4]. There is

no published literature yet on the normal values of FGA scores in children with cerebral palsy within age group 5-12 years.

Aim of the Study

The aim of this study is to find out the normal value of FGA scores in children with CP in the age ranging from 5-12 years.

Methods

Participant Recruitment

Diagnosed cases of children having cerebral palsy in age ranging from 5-12 years both males and females will be included in the study. Subjects will be taken from special schools recognized by Rehabilitation council of India (RCI). A pilot study will be performed prior to the study and sample size estimation will be done according to the results of the pilot study. Sampling method will be cluster sampling for the selection of special schools.

Procedure

Children with CP meeting the criteria will be recruited from the special schools. All the required anthropometric measurement will be noted. The children will be given demonstration of the test prior to performing the tests. They will be asked to perform the FGA test and scores will be recorded by the same examiner.

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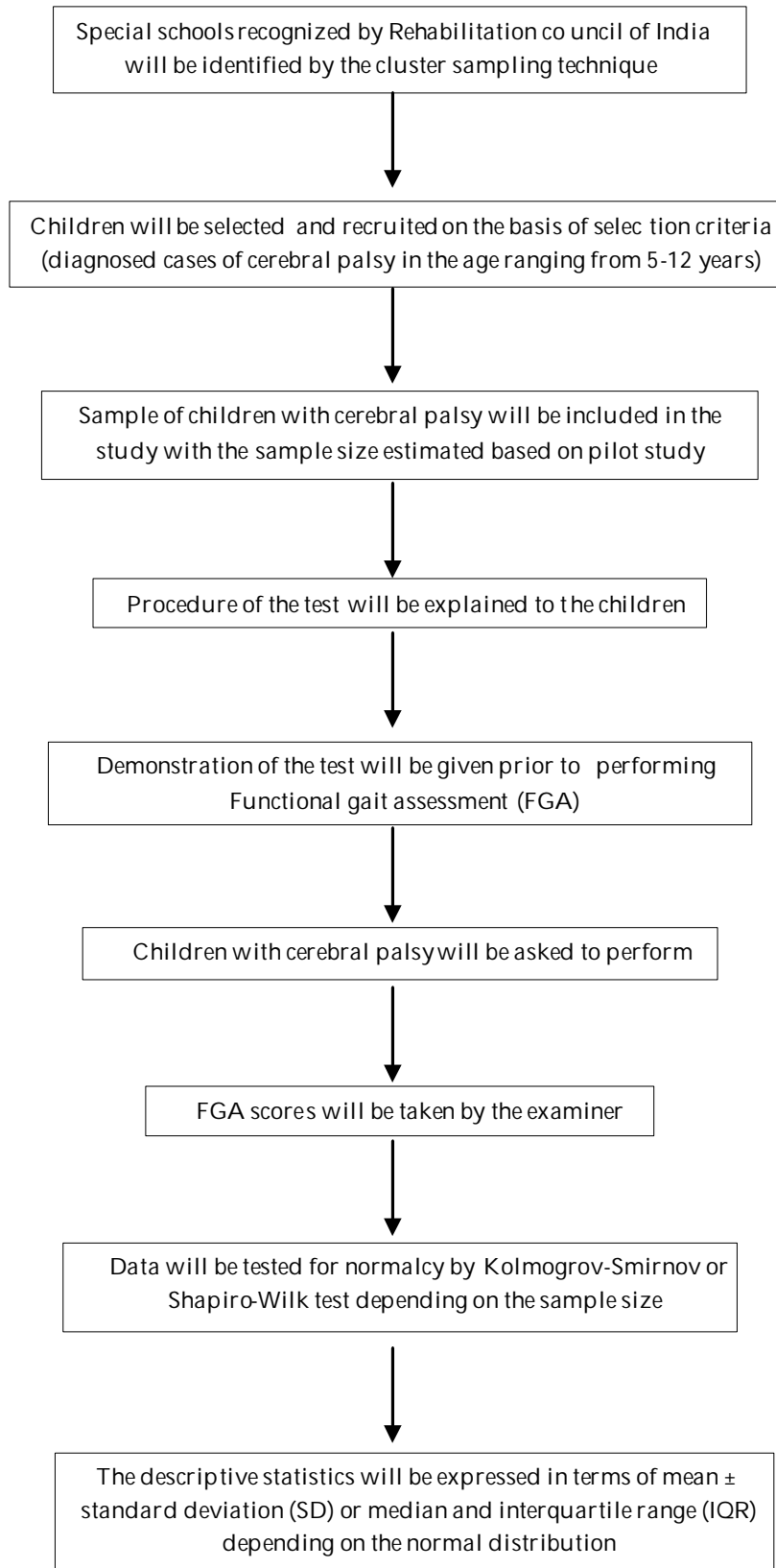


Fig. 1: Study protocol and procedure

Data Analysis

Kolmogorov-Smirnov or Shapiro Wilk test will be used to establish the normality of collected data depending on the sample size. The descriptive statistics will be expressed in terms of mean \pm standard deviation (SD) or median and interquartile range (IQR) depending on the normal distribution. For all the above analysis, the level of significance will be set at $p < 0.05$ to minimize type I error. The statistical package for social sciences software version 16.0 (SPSS, version 16.0 Inc., Chicago, IL) will be used for data analysis.

Discussion

Gait analysis has been found helpful in improvement of outcomes when its recommendations are incorporated in the treatment plan [5]. In children gait changes with motor development and requires frequent observations to track progress effectively. The use of validated measurements of gait and balance are very important to establish baseline function and assess effectiveness of therapeutic interventions [6]. The present study will provide the reference value of FGA scale to be used in children with CP in the age ranging from 5-12 years. Further, on establishing the responsiveness of FGA test, it will also be used to assess the efficacy of various therapeutic interventions as functional assessment can help in tracking improvements during rehabilitation regimens. Thus FGA could be effectively used to monitor treatment efficacy in children with gait abnormalities.

Conclusion

The study may help in establishing the reference values of FGA scale in children with CP in the age

ranging from 5-12 years which may be used as the standard norms among them.

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