

TEST-RETEST RELIABILITY OF BERG BALANCE SCALE IN SUBJECTS WITH DIABETIC NEUROPATHY: A PILOT STUDY

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ABSTRACT

INTRODUCTION: Diabetic neuropathy leads to decrease in postural control implies in risk of falls in neuropathic individuals. The BBS is the most widely used and validated instrument for assessing balance performance.

AIM: To study test-retest reliability of berg balance scale in patient with diabetic neuropathy **METHOD:** A total number of 5 patients with diabetic neuropathy were included in this study. Each participant's recorded performance of the berg balance scale was scored independently by the rater on 1st day and 3rd day.

RESULTS: As per Cronbach's alpha calculated for berg balance scale is with mean of 34.60 and SD \pm 7.82 and 38.80 with SD \pm 1.28. Test-retest reliability for this test is good as per following Cronbach's alpha.

CONCLUSION: This research demonstrated that the berg balance scale shows good test-retest reliability. These findings indicate that berg balance scale could be used to assess balance of the patients with diabetic neuropathy.

KEY WORDS: Berg balance scale, Diabetic Neuropathy, Test-Retest reliability.

I. INTRODUCTION

Diabetes is a complex metabolic disease that leads to impaired metabolism of carbohydrates, fats, and proteins.^[1] The prevalence of neuropathy increased with increased in age and duration of diabetes.^[2]

Diabetic peripheral neuropathy affects up to 50% of people with diabetes and usually starts with lesions on peripheral sensitive nerves and progresses to motor and autonomic nerves. Diabetic neuropathy causes the progressive loss of vibratory, thermal, tactile, and proprioceptive sensitivities, following this sequence of incidence. The feet are the main target to most of the sensitive and motor complication to which individuals with diabetes are exposed.^[3,4] Diabetic peripheral neuropathy leads to a decrease in nerve conduction velocity, generally progressing in a distal to proximal direction.^[5,6]

Patients with diabetic peripheral neuropathy (DPN) have an altered gait strategy and increased risk of falling. A fall is preceded by loss of balance, which may be recoverable in some individuals, but requires rapid responses and a high level of strength from the lower-limb muscles.^[7]

The BBS is the most widely used and validated instrument for assessing balance performance in neurological conditions. It is composed of 14 items that require subjects to maintain positions of varying difficulty and perform specific tasks such as standing and sitting unsupported, transfers (sit to stand and stand to sit), turn to look over shoulders, pick up an object from the floor, turn 360° and place alternate feet on a stool.^[8,9]

II. AIM OF THE STUDY:

The aim is to study the test-retest reliability of berg balance scale in patient with diabetic neuropathy

III. MATERIAL AND METHODOLOGY

MATERIALS

Stool
Chair
Foam surface
Stop watch

METHODOLOGY

For the present study the total number of 5 patients (both male and female) with age group of 45-60 years from parul sevashram hospital, Limda, were included. Patients who were willing to participate in study will diagnosed with diabetic neuropathy included in the study. Patients having musculoskeletal deformity, sensory loss, vestibular dysfunctions were excluded.

IV. PROCEDURE:

Patients were familiarized with testing procedure by physical demonstration. The study sample consists of 5 subjects having a diabetic neuropathy. All the 5 participants were evaluated with the the Berg balance scale by the rater on the 1st day and 3rd day to see the scores are same or not.

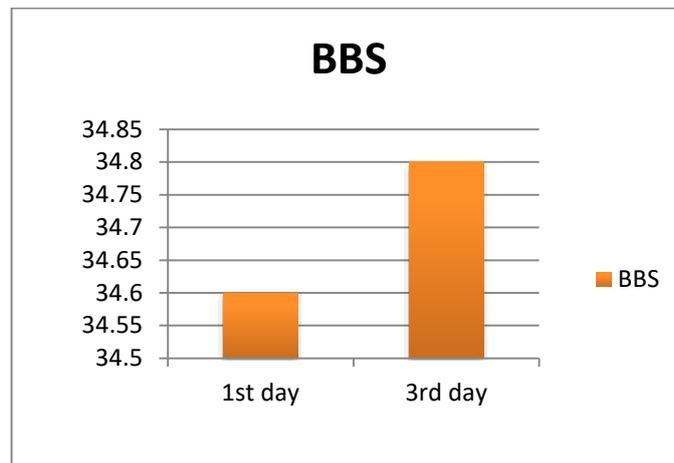
V. RESULTS

Statistical analysis was done using Cronbach's Alpha test in SPSS (version 20.0).

As per Cronbach's alpha calculated for berg balance scale is with mean of 34.60 and SD \pm 7.82 and 34.80 with SD \pm 1.28. Test-retest reliability for this test is good as per following Cronbach's alpha. Cronbach's alpha $\alpha \geq 0.9$ is considered excellent, $\alpha \geq 0.8$ is good, $\alpha \geq 0.7$ is questionable, $\alpha \geq 0.6$ is poor, $\alpha \geq 0.5$ is unacceptable.^[10]

Table 1: Score Of Berg Balance Scale On first Day And Third Day

DAYS	BBS Score (mean)
1 st day	34.60
3 rd day	34.80

Graph 1: It shows record of berg balance scale on first day and third day

VI. DISCUSSION

To our knowledge, test-retest reliability of berg balance scale for diabetic neuropathy has not been previously studied. Hence, from scientific point of view it is of interest to know test-retest reliability of this test.

We studied mean difference of berg balance scale score of different days. The findings observed in this study indicate differences in mean of two days score were statistically significant.

These findings together with those observed in this study suggest that berg balance scale constructed for diabetic neuropathy has a good test-retest reliability.

VII. CONCLUSION

This research demonstrated that the berg balance scale shows good test-retest reliability. These findings indicate that berg balance scale could be used to assess balance of the patients with diabetic neuropathy.

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