

INTRODUCTION

- As the population continues to age, balance problems will become more prevalent. Patients with impaired balance may be restricted in various activities of daily living, including exercise, household chores, and social events. These individuals are also at higher risk for falls, which is the most common fatal and non-fatal injury in the elderly.
- During the standard audiological evaluation case history, balance is discussed. While patients with severe symptoms and/or true vertigo are typically referred for vestibular testing, general balance complaints (unsteadiness, difficulty ambulating) are often not further addressed.
- This quality improvement project was designed to determine whether the Berg Balance Scale may be useful in an audiology clinic to quickly assess fall risk, document functional balance limitations, and determine appropriate referrals. The relationship between the Berg Balance Scale, Computerized Dynamic Posturography, and the Dizziness Handicap Inventory questionnaire was also examined.

THE BERG BALANCE SCALE

The Berg Balance Scale (BBS) is a 14 item functional performance-based test designed to quickly assess balance and fall risk in the clinical setting.

- Psychometric data from several studies shows that the BBS has high inter-rater reliability and construct validity.
- Testing takes 10-20 minutes to complete. Limited equipment and space requirements include: one chair with and one chair without armrests, step stool, stopwatch, measuring tape, and a 15 foot walkway.
- Scoring for each item is on a five-point scale ranging from 0-4.
 - "0" indicates a low level, "4" indicates a high level of function.
 - Highest total score possible is 56, indicating good balance ability.
- Fall risk is determined based on overall total:

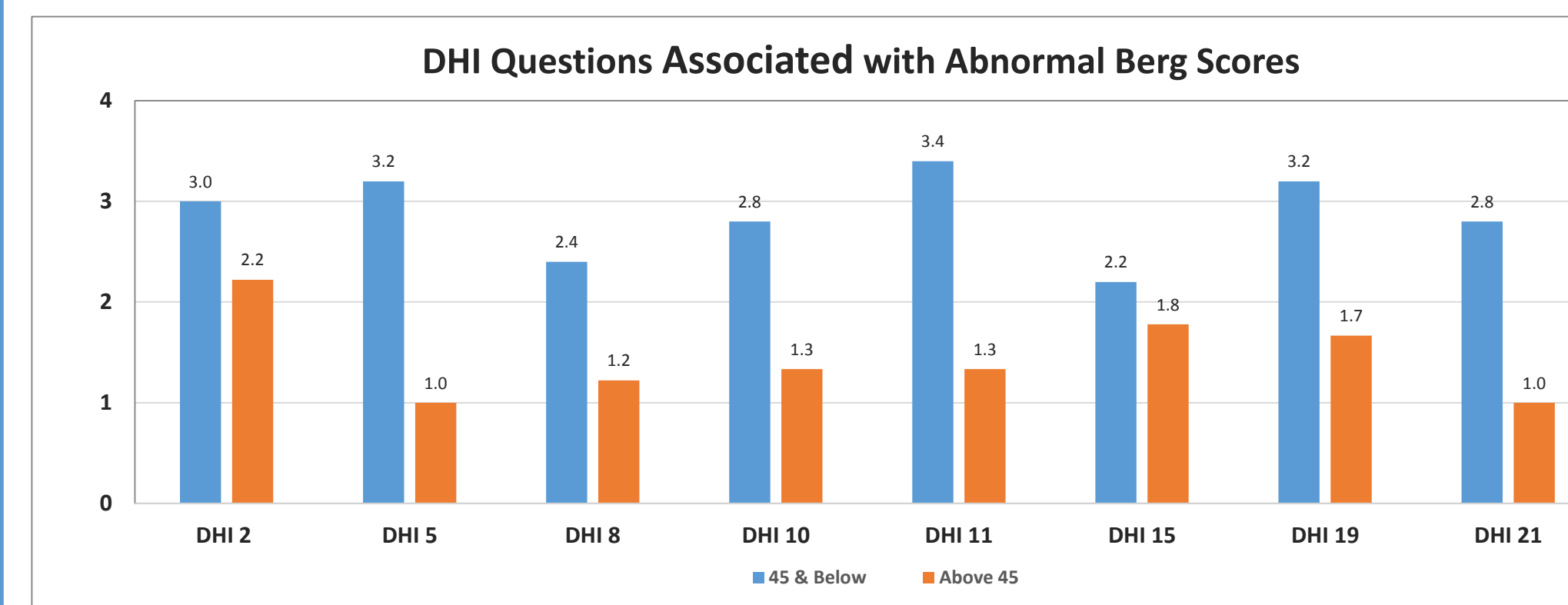
TOTAL SCORE	FALL RISK	AMBULATION RECOMMENDATIONS
46-56	None	N/A
41-45	Low	Independent/ no device needed
21-40	Medium	Walk with assistance (walker or cane)
0-20	High	Wheelchair

- Research by Mujdeci et al (2012) considered patients scoring 45 points or lower as 'abnormal' as they are at some fall risk.
 - For the purpose of this project, these guidelines were used.

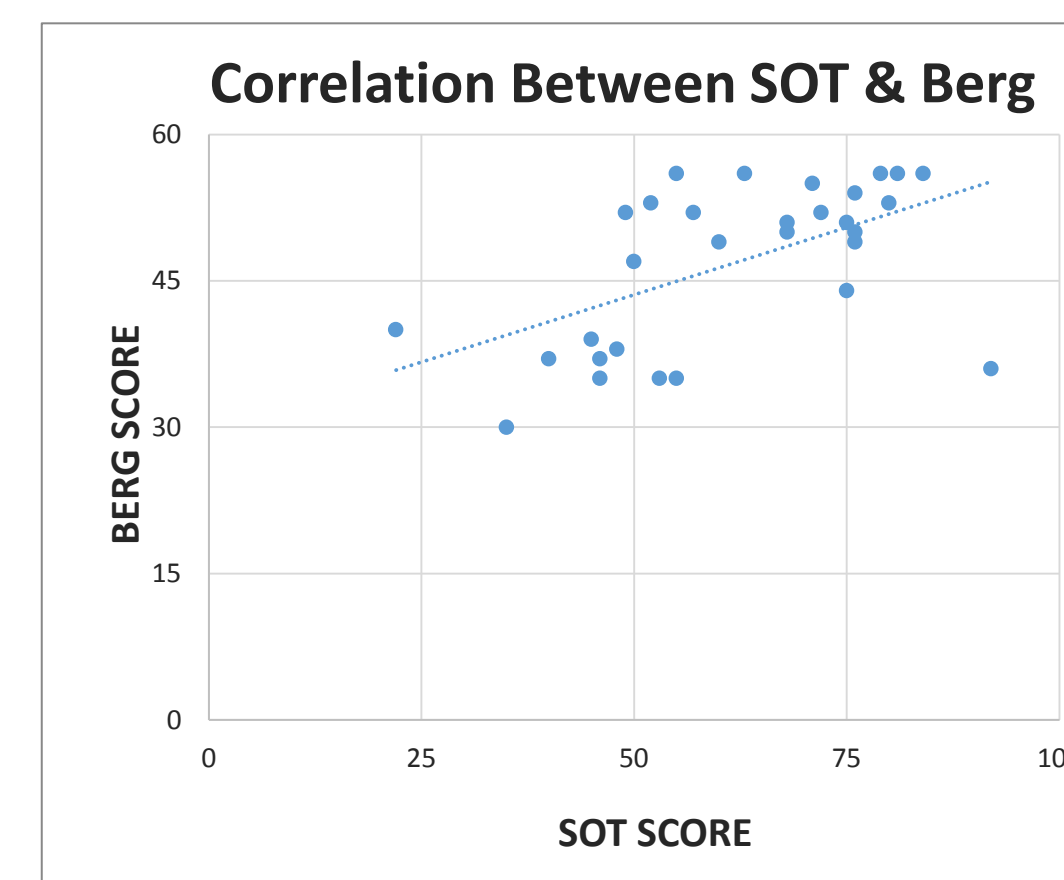
DATA COLLECTION

- Veterans who mentioned having problems with balance during their audiological case history were asked to participate.
- Data was collected from 30 Veterans, ranging in age from 36 to 89. Average age was 69.5.
- In addition to the Berg Balance Scale (BBS), the following tests were also administered:
 - Dizziness Handicap Inventory (DHI)
 - Computerized Dynamic Posturography (CDP)
 - Sensory Organization Test (SOT)
 - Motor Control Test (MCT)

RESULTS



While there was no significant relationship between total DHI score and BBS score., participants who scored abnormally on the BBS (45 & below) also had significantly higher DHI scores on specific questions, as seen in the above graph.



A statistically significant relationship was found between the SOT portion CDP and BBS total score.

DISCUSSION

- Patients seemed eager to participate in the balance screening and were pleased that their balance issue was being addressed.
- Total Berg scores for the participants of the project showed only 'no', 'low', or 'medium' fall risk (no 'high'). It should be noted that only one participant was currently using a wheelchair to ambulate, but several used a cane.
- Clinicians noted that it was difficult to make time to complete this testing during a 60 minute audiological evaluation and new hearing aid evaluation appointment. It was determined that adding extra time when scheduling the hearing aid fitting appointment (if patient will be returning for new aids) was a good option to assure adequate time was available.

CONCLUSIONS

- Audiologist should consider using the Berg Balance Scale as a screening tool for fall risk in patients who complain of general unsteadiness and/or difficulty ambulating.
 - Patients deemed at high risk for falls who are not currently using assistive devices can be referred to the appropriate professionals (PT, OT, or Audiology) for additional evaluation and treatment.
- For clinics that do not have Computerized Dynamic Posturography equipment, the Berg Balance Scale could be added to the vestibular assessment test battery to evaluate functional limitations.
 - Other functional based tests should also be considered, such as The Timed Up and Go Test or the Romberg Test.
- Functional testing such as the Berg Balance Scale should not be used in place of full diagnostic vestibular assessment when appropriate.

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