Adapting the Tinetti (Balance and Gait) for Persons with Dementia

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Introduction

- Among available measures of mobility, most require the participant to follow instructions, or use expensive technology.

- The 'Tinetti Scale of Balance & Gait'
  - 17 items, established reliability & validity
  - Provides the most promise for use with persons with dementia
  - Required modification

Tinetti Scale for Balance and Gait (Tinetti, 1986)

- Our rationale for choosing the Tinetti scale to modify:

1) many of the components of this tool are based on observation of the patient, and

2) it is feasible to administer in ten minutes or less with minimal specialized equipment or training.

Tinetti Scale for Balance & Gait

- Items scored 0/1, or some 0/1/2

    Balance Subscale

    +Gait Subscale

    =Total Score

- Total score previously correlated with risk of falls

Scale Modification

Two Items Omitted:

- Stand, feet together, nudge 3 times on sternum
- Stand with eyes closed

One Item Modified:

- Turn 360^0. Modified to a more easily observable task of turning 180^0
- Any scale modification calls for examination of the impact on the psychometric properties (reliability, validity)

Purpose

To determine the

- Inter-rater &

- Test- retest reliability of the modified Tinetti (Dementia)

- To test the modified measure in at least 2 settings (e.g. inpatient & long term care)

Methods

- Reliability study in preparation for validity study

- Participants: inpatients & residents

- Inclusion: dementia, ambulate with minimal assistance.

- Exclusion: acute change in medical status within the past two days (e.g. probable delirium, acute infection).

- Consent from SDM

Testing at other sites

Additional recruitment sites:

- ALC unit at Charlton

- Wentworth Lodge

- Plan for Parkwood Institute, Geriatric Psychiatry Unit

Methods

- Inter-rater reliability: administered by two staff who had read instructions, practiced 2-3 times with measure (PT, OT & RN)

- Test-retest reliability: 10-30 minutes after first administration

Sample Description

- n=22 consent by SDM
- n=18 valid data
  - n=1 unable to ambulate, n=3 not available on day of visit
- mean age=77
- female n=11 (61%), male n=7 (39%)
- Most common secondary diagnoses: diabetes, heart disease, Parkinson's
- MMSE score range 0-22/30

Results: Sample Description

Tinetti scale	mean	range
Balance subscale	7.9/13	1-13
Gait subscale	9.4/12	6-12
Total score	17.3/25	8-25

Results

- Inter-rater reliability for total score

  r= 0.94 (p<0.01)

- Test-retest reliability for total score

  r= 0.90 (p<0.01)

Discussion

- Results comparable to established reliability of the original Tinetti tool (r>0.8) (Kekelmeyer, Kloos, Thomas & Kostyk, 2007).

- Results promising for reliability of Tinetti Scale for Balance & Gait (Dementia)

- Feasible administration in inpatient & LTC settings

Discussion

- Turning 180^0 easily accomplished by leading person towards end of hallway & able to observe required skill (continuity of steps)

- Difficult items:
  - Standing up & Sitting down: required significant cueing for some participants
  - "Path"- 'marked deviation' or 'straight'?
    - Dementia- may be deviated but straight to object of interest

Conclusions

- Reliability of modified measure was high
- Assessment of functional changes in this population is important for determining the impact of mobilization and least restraint programs for people with dementia.
- Further study will establish validity of the cut score for predicting falls risk.

Thank you

- Questions?
- Email contact: