Correlation of Cognitive Impairment with Activities of Daily Living in Elderly Individuals

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Abstract

Aim: To correlate Cognitive Impairment with activity of daily living in elderly individuals.

Background: Cognitive Impairment is usually seen in Individuals above 75 Years. Activity of Daily Living can be affected in elderly individuals.

MOCA and Modified Barthel Index has been used for the investigation.

Methodology: This was an correlational study. 60 elderly individuals between the age group of 75-85 were included in the study. First, assessment of cognition was done by using Montreal Cognitive Assessment Scale (MOCA). If the score is below 26, in those individuals Modified Barthel Index was taken to check Activity of Daily living. If the score is below 100, it indicated decline in ADL's. The data was stastically analysed using Pearson Correlation Test.

Results: MOCA has a negative correlation between MBI.

Conclusion: There is a negative correlation between Cognitive Impairment and Activity of Daily living in elderly individuals.

Keywords: *Cognitive impairment, Aging, Activity of daily living.*

Introduction

Ageing is associated with decrease in muscle strength, aerobic capacity, neuromuscular co- ordination and flexibility which can affect physical performance.(1) Mobility, disability and decline in maintaining balance and walking is associated with loss of independence and disability.(1)

Cognition helps the individual to simultaneously walk while carrying out other motor and cognitive processes (e.g. talking to a companion during walking, reading a street sign, etc.)(2) Decline in cognitive function is associated with decrease in physical activity and disability.(2) Cognition is important for planning and monitoring performance such as attention and speed.(2)

Cognition is one of the important component which is affected in Geriatric Population(3). Decline in Cognitive Impairment can lead to decrease in Activity of daily living in geriatric individuals.(3) Cognitive impairment can be the risk factor for decline in Activity of daily living.(1)

Risk Factors affecting cognition are biological and psychological. Biological factors are hormonal imbalance and obesity .Psychological factors include anxiety and stress.(1)

The changes associated with old age that brings a cognitive decline is referred to as aging associated cognitive decline. Decline in cognitive ability from a

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higher level of function brings multiple problems that influence rehabilitation of the older individual. Memory loss is the cognitive component most often associated with ageing. Elderly cannot remember basic information and have severe lapses in memory. The most prominent structural theory of memory describes three distinct types: sensory, short term, long term memory.(4)

The concept of functional independence may be conceived in several ways. These include dependence or the degree of assistance needed to perform a task, how much pain accompanies the task, amount of time it takes to perform the activity, or whether an individual uses an assistive device or aid to perform the task. (4) Loss of independence in activities of daily living in geriatric individuals is associated with caregiver burden and death.(5)

Common Activity of daily living includes feeding, Bathing, Dressing, grooming, Transfers, etc.(5) Limitation in age related disability leads to decline in Activity of Daily Living. Decline in Activity of daily living leads to mortality.(6) The ADL include all of the fundamental tasks and activities necessary for survival, hygiene and self- care. Incontinence and the ability to use bathroom are especially important elements in the assessment of physical function in some older adults.(4)

The Montreal Cognitive Assessment (MOCA) is a widely used screening assessment for detecting cognitive impairment. Montreal Cognitive Assessment tool more focuses on Frontal Executive Functioning and attention which helps in assessing dementia. Time to administer MOCA is 10 minutes. It is a 30 point.

Cognitive Screening test to assess cognition. It includes alternating trail making, viso -constructional skills (cube, clock), naming, memory, attention, verbal fluency Sentence repetition, abstraction, delayed recall, orientation etc. The total possible score is 30 points. A score above 26 is considered normal.(9)

The Modified Barthel Index is assessment tool for assessing self- care and mobility activities of daily living. The components of scale include Feeding, Bathing, grooming, dressing, bowel, bladder, toilet use, transfers, mobility, stairs. It helps to determine whether the patient is dependent or independent. There are various scales out of which Modified Barthel Index has good reliability and validity. The score ranges from 0- 100 out of which 100 is normal. The score below 100 indicates decline in activities of daily living. (10)

Materials and Methodology

1. Study Design

Type of study – Cross- sectional Study.

Duration of study – 1 Year

Area of Study - Metropolitan City.

2. Sample Design

Sample Size- 60.

Sample Population – 75 – 85 Years Geriatric Population.

Sampling – Convenient.

Materials Used:

1. Pen.
2. Book.
3. Consent Form.
4. Montreal Cognitive Assessment Scale.
5. Modified Barthel Index Scale.

Inclusion Criteria:

1. Elderly willing to participate.
2. Able to read and write.
3. Age group 75 – 85 years.
4. Community Ambulating Elderly.

Exclusion Criteria::

1. Musculoskeletal disorder.
2. Cardiorespiratory disorder.
3. Neurological disorder.
4. Diabetes Mellitus.
5. Visual disorder.
6. Hearing disorder.

Procedure: The subjects will be selected according to the inclusion and exclusion criteria. Prior to this study a written informed consent will be taken by each subject in the language best understood by them.

Before handling the questionnaire, each subject will be given detailed information about the purpose of the study.

Assessment of cognition is done using Montreal Cognitive assessment Scale. Subjects will be explained about the Montreal Cognitive assessment scale. Components of the scales will then be assessed (which includes visual spatial, execution, attention, memory, delayed record, orientation, language). If the score is less than 26, it indicates Cognitive Impairment.

Elderly having cognitive impairment will be then selected to assess activity of daily living using modified Barthel Index Scale. If the score is below 100, it indicates decrease in Activity of daily living.

The data obtained will be recorded and processed further for analysis.

Results

DAta analysis was performed by using statistical package for social sciences SPSS 23.0 Version. The Shapiro-Wilk test was used for assessing normality of data. Since the data was found to be normally distributed the parametric test were used.

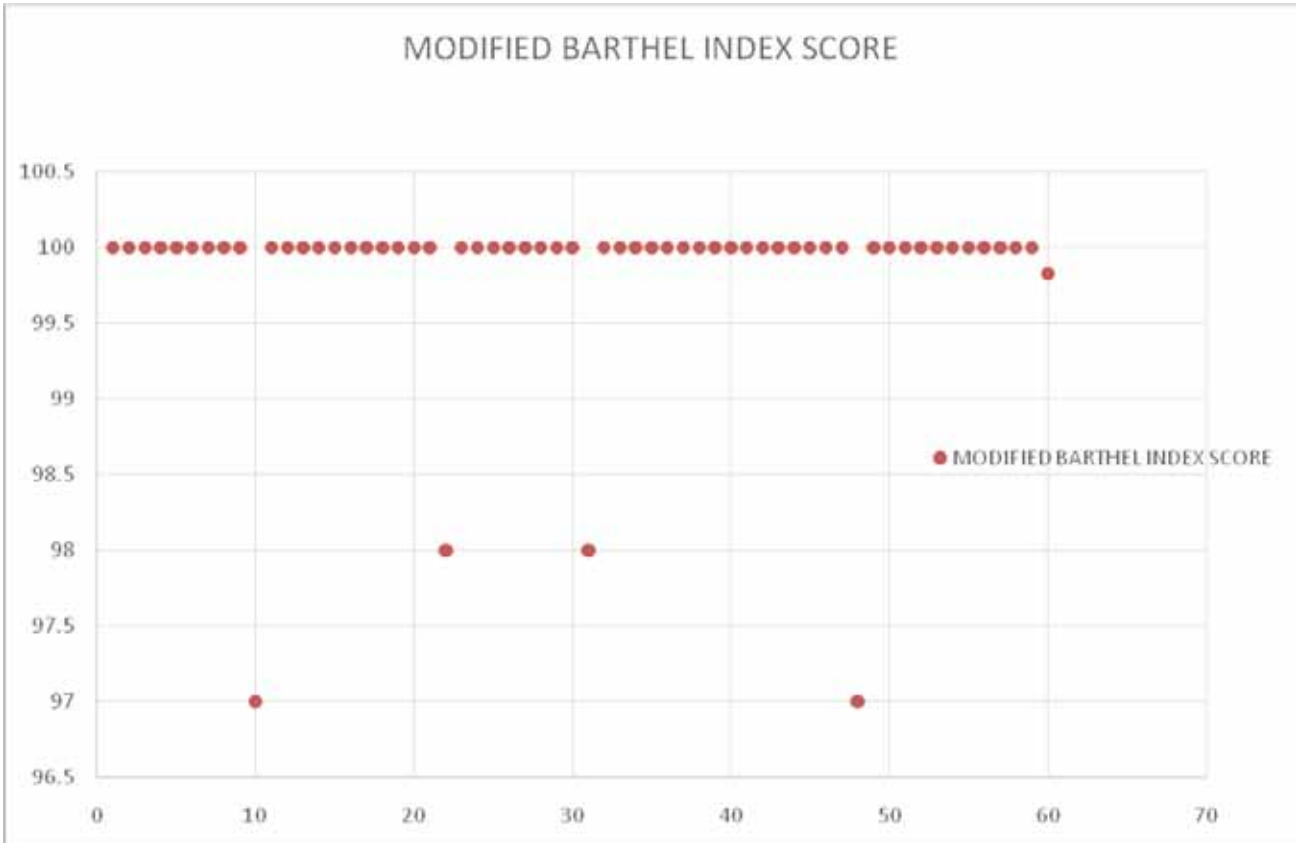
A p value of >0.05 was considered to be insignificant. Confidence interval of 95% was chosen.

1. The table 1 shows mean age.

Table 1:

Variables	Mean
Age	79.83

The table (1) shows mean of age group i.e. 79.83



Graph 1

Table 2

Variables	Mean	r value	P value	95% Confidence Interval
MOCA	20.16	-0.1391	>0.05	-0.3796 to 0.1190
MBI	98.83			

Table (2) shows r = -0.1391, p value = > 0.005 and 95% confidence interval (-0.3796 to 0.1190).

It shows that as cognition declines, activities of daily living are not affected in elderly individuals.

It concludes that there is a negative correlation between cognitive impairment and activity of daily in elderly individuals.

Discussion

The present study was done to find out the correlation between cognitive impairment and activity of daily living in elderly individual.

The result of study shows that: There is a negative correlation between cognition and activity of daily living.

This shows that as the score of MOCA decreses the score of MBI increases which means as cognition declines, ADL's are not affected.

Aron . S. Buchman et.al, showed that cognition is important for planning and monitoring such as attention. Decline in cognition function have been associated with both physical impairments and self reported disability. Due to aging there is decline in cognition function.

Ashwini . S. Kalsait et.al, performed that cognition impairment due to aging, which can lead to decrease in mobility associated with loss of ADL.

Mortiz .DJ el.al, mentioned that cognition is one of the important component which is affected in geriatic population. Decline in cognition can lead to decrease in ADL in geriatic individuals.

Philip A. Greiner et.al, concluded that loss of independence in ADL's is a marker of decline in elderly individuals. Cognitive impairment leads to decrease in mobility, which ultimately leads to decline in ADL.

Christian .K. Anderson et.al, showed that due to decline in cognition, ADL is hamper in elderly individuals.

Cognition was assessed using MOCA scale. MOCA is widely used screening assessment for detecting cognitive impairment.

In present study, we found out that age, cognitive impairment doesn't have significant association with ADL's.

The mean for MOCA is 20.16. The mean for MBI is 98.83.

The r value is -0.1391.

The p value is >0.05.

By conventional criteria, it is considered to be non-significant

Conclusion

Since there was a negative correlation between MOCA and MBI.

This study concludes that as cognition declines, there is no decline in activity of daily living in elderly individuals.

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