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A Study on the Cognitive Status in Hypertensive Geriatric Patients Receiving Various Antihypertensive Drugs in a Medical College and Teaching Hospital

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Abstract

Objectives: The objective of our study is to assess the cognitive status in hypertensive geriatric patients using MoCA questionnaire, to assess the association of various variables in the cognitive status in older adults.

Methods: A prospective observational study was carried out from October 2017 to April 2018 in the inpatient Department of General Medicine. All the demographic details were collected by self-designed data collection form. A specially designed screening tool known as MoCA Questionnaire was used to find out cognitive status. Demographic datas and details regarding drug therapy were reported by descriptive analysis. Association of various variables on cognitive status was evaluated by inferential statistics such as Chi Square test.

Results: A total of 135 hypertensive geriatric patients were included in the study. Based on MoCA screening tool, 63 (46.6%) passed the test and 72 (53.3%) failed the test which shows mild cognitive impairment. On considering the different variables it was found that quality of life, social habits such as smoking and alcoholism, educational status, occupation are having positive relationship with cognitive impairment. There was negative association between cognitive impairment and socio-economic status. Additionally, those who are unemployed and living in rural areas had higher prevalence of cognitive problems.

Conclusion: In this prospective observational study majority participants had mild cognitive impairment based on MoCA screening tool. Here the significance of various variables in the development of cognitive status was assessed. Better knowledge about risk factors and confounding variables will help the health care professionals in reducing cognitive impairment in geriatrics.

Keywords: Cognitive status; Geriatrics; Geriatrics; MoCA questionnaire

Introduction

Hypertension, or a persistently high blood pressure is a sustained systolic blood pressure of 140 millimeters of mercury (mm Hg) or more, sustained diastolic blood pressure of 90 mm Hg or more, or both. Hypertension may alter the brain's structure and function, including cognitive function which is the ability to efficiently process information [1].

Symptoms of severe hypertension include tiredness, nausea, vomiting, confusion, anxiety, and chest pain and muscle tremors [2]. Significant risk factors for HTN include being old, less physical activity, obesity, smoking and alcohol consumption [3]. The geriatric population i.e. the elderly population, usually includes people aged 65 and over [4]. Recent estimates have predicted that people aged 65 and above will constitute 16 percent of total population by 2050 [5]. Many recent studies have revealed that hypertension is an important risk factor for dementia, Alzheimer's disease and Mild Cognitive Impairment (MCI).

The term mild cognitive impairment describes those individuals whose cognitive status is between aging and early dementia. Domains affected include memory, visuospatial skills, language, attention, and executive function. Among different age groups MCI prevalence is as follows: 6.7% for ages 60-64; 8.4% for ages 65-69, 10.1% for ages 70-74, 14.8% for ages 75-79, and 25.2% for ages 80-84 [6]. According to the recent ARIC (Atherosclerosis Risk in Communities) neurocognitive trail only midlife hypertension is associated with greater cognitive decline over 20 years follow up not the late life hypertension [6]. However, few studies showed that there is no relationship with and dementia high blood pressure and also suggested that dementia is related to low blood pressure due to J curve phenomenon [7].

The MoCA is a simple, stand-alone cognitive screening tool with superior sensitivity which has excellent test-retest reliability and positive and negative predictive values for MCI [8]. It was found that MOCA is more sensitive than MMSE in detecting cognitive dysfunction 3 to 6 months after experiencing neurological deficits [9]. The socioeconomic statuses, education, occupation, duration of hypertension, comorbidities, blood pressure are the important variables considering with respect to the cognitive status of geriatric patient in our study. So, efforts are needed improve the health condition of these patients by the means of effective patient care programs. Hence considering all these factors we have included the MoCA questionnaire to study the cognitive status in hypertensive geriatric patients and to find out the association of various variables on the development of cognitive status in these patients.

Materials and Methods

Study population

A prospective observational study was carried out between October 2017 and April 2018 in a Medical College Teaching Hospital. A total of 145 patients were approached for the study but only 135 patients were willing to participate and responded to questionnaire. All the included patients were above 65 years and hypertensive patients with or without comorbid conditions.

Data collection

All the demographic details were collected by means of specially designed data collection form. Other data related to cognitive function were collected by means of rapid screening tool known as Montreal Cognitive Assessment (MoCA) Questionnaire. It assesses different cognitive domains such as attention, concentration, executive functions, memory, language and conceptual thinking. A written consent was obtained before the administration of questionnaire to participants. All their details were kept as strictly confidential. Finally if the participants could not understand the questionnaires due to language problem he/she was excluded from study.

Data analysis

Time to administer MoCA questionnaire for each patient is approximately 10 minutes. Total possible score was 30 minutes. A score of 26 or above is considered normal. If the score comes between 18-25 it indicates mild cognitive impairment. Microsoft word and excel have been used to generate graphs and tables for the analysis of data. Various descriptive datas were analysed and reported as frequency, percentage and mean score. Chi square test was used to analyse the association of different parameters and cognitive impairment. All the difference of these variables were considered as statistically significant if $P<0.05$.

Ethical approval

All the patients who fulfilled the inclusion criteria were included in the study each one of them was given informed consent form and methodology was explained in the local language in Kannada. Ethics committee approval was obtained from institutional ethics committee of the oxford medical college hospital, Bangalore.

Results

A total of 135 study participants who fulfilled inclusion criteria has completed and returned the questionnaire. In that 93 (68.6%) were belonging to the age group of 65-70 years. Among the participants most of them were male 78 (57.7%) and the highest percentage of hypertensive geriatric patients were unemployed (46.6%). Majority of participants did not had any social habits (47.4%) and (22.2%) were having both smoking and alcoholism. Based on the socio economic status majority were poor 69 (28.8%) were shown in **Table 1**.

Characteristics	Participants (n=135)
Age (Years)	
65-70	93 (68.69%)
71-80	27 (20.320%)
>80	15 (11.11%)
Sex	
Male	78 (57.7%)
Female	57 (42.2%)
Occupation	
Unemployed	63 (46.66%)
Daily wage worker	45 (33.33%)
Farmer	19 (14.07)
Business	7 (5.18%)
Govt. Servant	1 (0.740%)
Social habits	
Alcoholic	17 (12.59%)
Smoking	24 (17.77%)
Alcoholic+Smoking	30 (22.22%)
Socio economic Status	
Upper	0
Middle	11 (8.148%)
Lower middle	55 (40.74%)
Poor	69 (28.88%)

Table 1: Baseline characteristics of hypertensive geriatric patients (n (%)).

Table 2 shows the disease and drug related parameters related to hypertension such as blood pressure distribution, duration, comorbidities and the different pattern of antihypertensive drugs. Among the study participants 78 (57.7%) had BP values greater than 140/90 and 57 (42.2%) had value less than 140/90. In our study duration of hypertension was also evaluated. It was found that (22.2%) patients were taking antihypertensives for 1-5 years, 37.7% patients were taking the drug for 6-10 years and 8% were taking the drug for 11-15 years. Majority patients had comorbid conditions along with hypertension. Almost 34 (25.1%) had asthma, 56 (41.4%) had Diabetes Mellitus and 9 (6.6%) had Hyperlipidaemia. While considering the antihypertensive drugs taken by the patients both monotherapy and dual therapy were there. Almost 42 (31.1%) were taking Angiotensin Receptor Blockers and least was 2 (1.4%) taking combination of calcium channel blockers.

Distribution based on blood pressure levels	
>140/90	78 (57.7%)
<140/90	57 (42.2%)
Duration of hypertension (years)	
1-5	30 (22.2%)

6-10	51 (37.7%)
11-15	35 (8.04%)
16-20	16 (4.44%)
>20	3 (2.22%)
Comorbidities along with hypertension	
HTN	23 (17.03%)
HTN+DM	56 (41.4%)
HTN+asthma	34 (25.1%)
HTN+HL	9 (6.66%)
Others	13 (9.62%)
Antihypertensives taken by study patients	
Angiotensin receptor blocker	42 (31.1%)
Diuretics	19 (14.7%)
Angiotensin converting enzyme inhibitors	10 (17.4%)
Angiotensin receptor blocker +diuretics	6 (4.53%)

Table 2: Different Parameters of study population related to hypertension.

To find out the association of different variables on cognitive status Patients were divided into 2 groups, normal and MCI (Mild Cognitive Impairment). Normal subjects those who were cognitively not impaired or who passed MoCA test and MCI those who failed to score MoCA test or cognitively impaired patients. Here the correlation of different variables such as age, gender, occupation, social habits, socio economic status on the cognitive status of study participants was studied.

Discussion

It was a prospective observational study conducted to analyse the cognitive status in hypertensive geriatric patients by using MoCA (Montreal Cognitive Assessment) questionnaire. Cognitive status in geriatric patients was studied and the correlations with various factors were assessed. Many correlations were observed between various parameters such as duration, education, socio economic status, blood pressure levels and other comorbid conditions.

In our study it was observed that higher number of patients who passed the MoCA test were taking antihypertensive therapy for 1-5 years (80%), followed by 6-10 years (62.7%) and the least number of patients who passed MoCA test were taking antihypertensives for 16-20 years (18.7%) which suggests that in hypertensive patients the duration of hypertension is associated with dementia and cognitive decline. However this same result has been observed in previous study conducted by Lazo, et al. and also by American heart association [10].

Our study showed that socio economic status had an association with cognitive decline. Here poor class patients showed higher level of cognitive decline. Here poor class patients showed higher level of cognitive decline but middle class and lower class had medium level of cognitive impairment. Another longitudinal study for elderly Chinese people with 85% MCI in poor class, 40% MCI in middle class and 45% in lower middle class showed the same results [11].

This study had some limitations as the study period is short because of which appropriate results were not obtained. Very less number of subjects were included in the study and also the duration of study period is less. The study is based on a single institution and therefore the results cannot be generalised. This study is observational while an interventional study can have greater impact on results.

Conclusion

The association of hypertension and cognitive decline is less reported and less studied in India. Better knowledge about the risk factors and confounding variables will help the health care professional in making decision to reduce the cognitive impairment in geriatrics. It will be undoubtedly benefit for improving the quality of life of elderly people and this study can definitely act as a building stone in the study of this topic in future.

Conflict of Interest Statement

The authors declare that there is no conflict of interest.

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Author's Contribution

All authors substantially contributed in making the research article. SMT was involved in designing and acquisition of data. SV conducted the data analysis.

References

1. Waldstein SR (2003) The relation of hypertension to cognitive function. Curr Dir Psychol Sci 12: 9-13.
2. Giles TD, Materson BJ, Cohn JN, Kostis JB (2009) Definition and classification of hypertension: An update. J Clin Hypertens 11: 611-614.
3. Lawes CM, Vander Hoorn S, Rodgers A (2008) Global burden of blood-pressure-related disease, 2001. Lancet 371: 1513-1518.
4. Chataut J, Adhikari RK, Sinha NP (2011) Prevalence and risk factors for hypertension in adults living in central development region of Nepal. Kathmandu Univ Med J 9: 13-18.
5. Bell K, Twiggs J, Olin BR, Date IR (2015) Hypertension: The silent killer: Updated JNC-8 guideline recommendations. Alabama phar ass.
6. Chobanian AV, Bakris GL, Black HR, Cushman WC, Green LA, et al. (2003) Seventh report of the joint national committee on

prevention, detection, evaluation, and treatment of high blood pressure. Hypertension 42: 1206-1252.

7. Hosseini SR, Gumming RG, Sajjadi P, Bijani A (2011) Chronic diseases among older people in Amirkola, northern Islamic Republic of Iran. East Mediterr Health J 17: 843-849.
8. Canbaz S, Sunter AT, Dabak S, Peksen Y (2003) The prevalence of chronic diseases and quality of life in elderly people in Samsun. Turk J Med Sci 33: 335-336.
9. Kinsella K, He W (2009) An aging world: 2008 international population reports.
10. Lazo-Porras M, Ortiz-Soriano V, Moscoso-Porras M, Runzer-Colmenares FM, Málaga G, et al. (2017) Cognitive impairment and hypertension in older adults living in extreme poverty: A cross-sectional study in Peru. BMC Geriatr 17.
11. Wang Y, Song M, Yu L, Wang L, An C, et al. (2015) Mild cognitive impairment: Vascular risk factors in community elderly in four cities of hebei province, China. PloS one 10: e0124566.