ORIGINAL ARTICLE

Profile of Dementia Patients Attended at Neurology Outdoor Clinic in a Tertiary Care Hospital of Bangladesh

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Abstract

Background: Background: According to the World Health Organization (WHO), dementia has become a public health concern due to its significant economic burden on families and nations. However, similar to many developing countries, limited information exists regarding the demographics, clinical characteristics, and comorbidities of dementia patients in Bangladesh.

Objective: To examine the clinical and demographic profile of dementia patients at a tertiary-level hospital in Sylhet, Bangladesh.

Methods: This observational study included patients with mild to moderate dementia who attended the outpatient Neurology clinic at Sylhet MAG Osmani Medical College, Bangladesh, between July 2017 and June 2018. Data were obtained through face-to-face interviews using a semi-structured questionnaire.

Results: The study comprised 71 patients, with a mean age of 62±7.02 years; 53.5% were male, 50.7% resided in rural areas, and 95.7% identified as Muslim. The average duration of illness was 25.20±9.25 months. Vascular dementia (VaD) was the most frequently diagnosed subtype, accounting for 47.9% of cases. Various risk factors (e.g., smoking, hypertension, stroke) were identified in 64.79% of patients. The baseline MMSE score prior to treatment was 14.39±2.95, improving to 19.95±3.50 after 12 weeks of treatment (p<0.001).

Conclusion: This study offers baseline data on dementia patients, including mean age, gender distribution, sociodemographic background, dementia subtypes, and observed treatment response.

Keywords: Dementia, Cognitive Function, Neurology, Mini-Mental State Examination (MMSE)

Introduction

Dementia represents a clinical syndrome marked by a diminution of previously acquired intellectual abilities, occurring without any impairment of arousal.[1] In 2015, around 46.8 million individuals globally were affected by dementia, a figure projected to nearly double every two decades, reaching 74.7 million by 2030 and soaring to 131.5 million by 2050.[2] Approximately 3% of people between the ages of 65 and 74 are affected by dementia, a figure that rises to 19% for those aged 75 to 84, and nearly 50% for individuals over 85 years old.[3] Reports indicate that questionable dementia is present in 11.5% of cases, whereas definite dementia is observed in 3.6% of individuals.[4]

In the realms of primary and secondary care, concise and straightforward tools hold significant importance for evaluating the severity of dementia. The Mini-Mental State Examination (MMSE) serves as a prevalent tool for this objective. The assessment comprises a series of brief cognitive tasks presented to the patient, with

scores that span from 0 (indicating the lowest level of cognitive function) to 30 (representing optimal cognitive performance), effectively illustrating a hierarchy from normal cognitive abilities to advanced dementia. Plenty of research has established its reliability and precision.[5] Generally, scores ranging from 21 to 26 on the MMSE suggest mild cognitive impairment, while those between 10 and 20 indicate moderate dementia. Scores falling below 10 are indicative of severe dementia.[6]

Bangladesh, recognized as the eighth most populous nation globally, is home to approximately 160 million individuals and is currently confronting the challenges posed by a swiftly aging demographic. The percentage of individuals aged over 60 is anticipated to increase to 9% by 2025 and reach 21% by 2050.[7] This demographic change indicates an impending social and economic challenge associated with dementia.[8] Nonetheless, the information concerning the demographics, characteristics, and risk factors of dementia patients in Bangladesh remains scarce. This study was to determine the clinical and demographic characteristics of dementia patients attending the neurology outpatient clinic at a tertiary care hospital in Bangladesh.

Methodology

This observational study was carried out at the outpatient Neurology clinic of Sylhet MAG Osmani Medical College, Bangladesh, over a one-year period from July 2017 to June 2018. The study population included patients diagnosed with mild to moderate dementia. Data collection involved both quantitative and qualitative approaches using a pre-structured questionnaire administered through face-to-face interviews. Cognitive function was assessed using the Bengali version of the Mini-Mental State Examination (MMSE), while the diagnosis of dementia was made in accordance with the criteria outlined in the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5). MMSE scores were recorded at three time points: baseline, the 4th week, and the 12th week, to evaluate cognitive changes over time. In addition to clinical assessments, socio-demographic information such as age, gender, educational attainment, and socioeconomic background was collected. The types of dementia were identified based on clinical evaluation.

Quantitative variables were summarized using means and standard deviations, and statistical comparisons of MMSE scores across different time points were conducted using paired t-tests and repeated measures ANOVA. Categorical data were reported as frequencies and percentages. All statistical analyses were performed using SPSS software (version 22.0 for Windows), and a p-value of less than 0.05 was considered to indicate statistical significance.

Results

Most of the patients 68.9% were between the ages of 60-79 years with male predominance 53.5%. The mean (±SD) age of the patient was calculated as 62±7.02 years. Majority of the respondents were Muslim 95.7%, 50.7% were from rural area Table I and II. Among the respondents 42.3% were housewives, service holder 15% and self-employed (business, driving etc) 29.7%. Duration of illness was 25.20±9.25 (3-120) in months, 79% duration of illness belongs to 6-24 months (Table II). 64.79% had got various risk factors for example smoking (8.45%), hypertension (22.53%) and diabetes (7.04%) and mixed risk factors (smoking, hypertension, diabetes, stroke etc.) (26.76%); however in 35.21% there was no known risk factor-Table III. The type of dementia according to clinical diagnosis was vascular dementia (47.9%), Parkinson's dementia (26.8%), and Alzheimer dementia (25.3%), figure-I. MMSE score at base line was 14.39±2.95 and after treatment at 4th week 16.37±3.21 with more on 12th week 19.95±3.5 (p<0.001)-Table IV.

Table I: Distribution of the study patients by age and sex (n=71)

Age-Sex distribution	Frequency (no.)	Percentage (%)
Age (in years)		
<50	5	7
50-59	16	22.5
60-69	28	39.4
70-79	21	29.5
80-89	1	1.4
Mean±SD 62±7.02 (36-80)		
Sex		
Male	38	53.5
Female	33	46.5

Age and sex distribution of the study patients. The mean age was found 62±7.02.
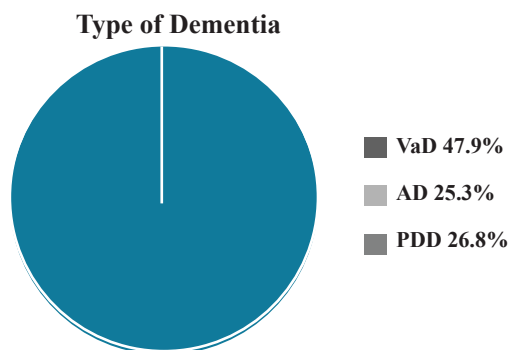
Male female ratio was 1.15: 1

Table-II: Distribution of the study patients by socio-demographic information (n=71)

Socio-demographic information	Frequency (no.)	Percentage (%)
Area of living		
Rural	36	50.7
Urban	34	47.8
Religion		
Islam	68	95.7
Hindu	3	4.2
Duration of illness (months)		
<6	2	2.8
6-12	28	39.5
13-24	28	39.5
25-36	5	7
37- more	8	11.2
Mean±SD,range 25.20±9.25(3-120)		
Occupational status		
Service holder	15	21
Self employed	21	29.7
Housewife	30	42.3
Retired	5	6

Table-III: Risk factors among the dementia patients (n=71)

Name of risk factor	Frequency (no.)	Percentage (%)
Smoking	6	8.45
Hypertension	16	22.53
Diabetes	5	7.04
Multiple risk factors (smoking, diabetes, hypertension, stroke)	19	26.77
Sub total	46	64.79
No known risk factor	25	35.21

Type of Dementia

VaD 47.9%
AD 25.3%
PDD 26.8%

Fig-I: Clinical type of Dementia; Vascular dementia (VaD) (n=34), Alzheimer dementia (AD) (n=18)Parkinson's dementia (PDD) (19)

Table-IV: Effect of Rivastigmine on MMSE score administered in patients with dementia estimated at baseline, 4th and 12th week of treatment

MMSE score (Mean ± SD)			
At Baseline	At 4th week	At 12th week	†p value
14.39 ± 2.95	16.37 ± 3.21	19.95 ± 3.50	p<0.001

†repeated measure ANOVA was applied to analyze data.

Discussion

Dementia is a complex syndrome that resists straightforward definition and often evokes significant societal fear, reflecting deeply rooted anxieties about aging and cognitive decline. Although there remains a lack of universal agreement regarding its precise neurological definition, dementia is widely recognized as a chronic medical condition that leads to progressive functional disability. Public awareness of its prevalence is growing, as reflected in regular media coverage. In the present study, the age of participants ranged from 36 to 80 years, with a mean age of 62 ± 7.02 years. Notably, 7% (n=5) of the patients were diagnosed with young-onset dementia, predominantly attributed to early-onset stroke. The majority of cases (68.9%) were in the 60–79 age group, underscoring the strong association between advancing age and dementia risk—a relationship consistently supported by numerous epidemiological studies. For instance, a Malaysian study reported that 66.2% of dementia patients were aged 65–74 years,[8] while an Indian cohort study documented a mean age of 66.2 years.[10] The observed variation in age distribution across studies may stem from the inclusion of different dementia subtypes, such as probable Alzheimer's disease and vascular dementia.

53.5% patients were male and 46.5% patients were female and the ratio 1.15:1. Arman et al.found that proportion of male and female was 56.4 and 43.6%% respectively and ratio 1.29:1.[11] Parlayan et al.found 50.0% male and 50.0% female.[12] A study conducted in the outpatient department of a Malaysian hospital showed male respondents were 50.6% and female respondents were 49.4%.[13] The male predominance may be due to gender disparity, lack of awareness among the females, less willingness on the part of females to come forward and dependence on male person of family.

In the present study, the majority of respondents (95.7%) were followers of Islam, while 4.2% were Hindu. This distribution contrasts with findings from a study conducted in Kerala, India, where 47.8% of respondents

were Hindu, 45.2% were Christian, and only 7% were Muslim.[14] The difference may be explained by the religious demography of Bangladesh, which is predominantly a Muslim-majority country.

This study was carried out in a tertiary-level hospital located in Sylhet, situated in the northeastern region of Bangladesh. Consequently, a substantial proportion of patients (50.7%) originated from rural areas.

The duration of dementia among the study participants ranged from 3 to 120 months, with a mean of 25.20 ± 9.25 months. Bullock et al. reported a somewhat longer mean duration of dementia (33.6 ± 22.2 months).[15] However, the average duration of symptoms in the present study (25.20 months) was comparable to that of an Indian cohort, which reported a mean duration of 27.6 months.[16]

In this study, 64.79% of the participants had identifiable risk factors for dementia. Among them, smoking was observed in 8.45%, hypertension in 22.53%, and diabetes in 7.04% as isolated factors. In addition, 26.76% of patients presented with mixed risk factors, including combinations of smoking, hypertension, diabetes, and stroke. Conversely, 35.21% of participants had no known risk factors. Consistent with existing global literature, hypertension, diabetes, and smoking demonstrated a significant association with dementia and Alzheimer's disease (AD).[17]

In the present study, the mean baseline MMSE score was 14.39 ± 2.95, which improved to 16.37 ± 3.21 at the 4th week and further increased to 19.95 ± 3.50 at the 12th week of drug treatment. This improvement was statistically significant ($p < 0.001$). These findings are in line with the results reported by Abolfazli et al., who also observed a significant improvement in MMSE scores ($p = 0.007$) after six months of Rivastigmine therapy.[18]

In the present study, vascular dementia (VaD) emerged as the most frequent clinical diagnosis, accounting for 47.9% of cases, followed by Parkinson's disease dementia (PDD) at 26.8%, and Alzheimer's disease (AD) at 25.3%. This distribution differs from that observed in an Indian cohort, where AD was the predominant diagnosis in 37% of patients, followed by VaD and familial Alzheimer's disease (FAD).[19] Globally, AD is recognized as the most prevalent form of dementia, comprising approximately 60% of all dementia cases in both developed and developing regions, with VaD typically ranking second.[20]

The higher prevalence of VaD in this study may be attributed to its setting—a general neurology outpatient clinic rather than a specialized memory or dementia unit—where stroke and ischemic-related cases are more frequently encountered. This pattern aligns with data from Japan, where more than 50% of dementia cases are VaD, and studies such as that by Aggarwal et al. (2007) have reported that 20–30% of patients develop dementia within three months of experiencing a stroke.[21]

Interestingly, PDD was identified as the second most common subtype in this cohort, consistent with findings from a study conducted in Islamabad.[22] Notably, no cases of Lewy body dementia (LBD) or frontotemporal dementia (FTD) were detected in the current study. One plausible explanation for this absence is the study setting: patients presenting with prominent psychotic symptoms may have been referred directly to psychiatric services, especially if they did not exhibit the hallmark short-term memory deficits characteristic of other dementia types.

Several limitations should be acknowledged. The study was conducted in a single tertiary care center, which may not reflect the broader epidemiological landscape of dementia across Bangladesh. The sample size was relatively small, and the treatment duration was limited due to time constraints. Moreover, the MMSE was the only cognitive assessment tool used to evaluate drug efficacy.

Conclusion

This study gives some baseline information regarding the demographics of patients with dementia, presentation, clinical types, MMSE score and treatment response among neurology outdoor clinic patients. More elaborate population-based studies are needed to address the burden of dementia in near future in Bangladesh.

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