Physical illness and dementia among the elderly patients in a tertiary care hospital: a cross sectional study

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Summary

The elder people are rapidly increasing throughout the world and dementia has become the important point of interest of health care professionals. The objective of the study was to find out the physical illness and dementia as well as their association among the elderly patients. This was a cross sectional and analytical study conducted in National Institute of Mental Health (NIMH) at Sher-e-Bangla Nagar, Dhaka, Bangladesh during the period from 1st November 2014 to 30th April 2015. For this purpose 78 elderly patients aged e"60 years attending both in outpatient and inpatient department of NIMH satisfying inclusion and exclusion criteria, irrespective of age and gender were selected as study population by convenient sampling technique. The result showed that majority (59%) had co-morbid physical illness. Common co-morbid physical illness was hypertension (26.9%). Among the respondents, 5 (6.4%) were current smokers and 12 (15.38%) had past history of smoking for more than five years. In the study, 50% of the respondents diagnosed with dementia had hypertension (c^2 = 3.8808, P= 0.04884), 25% dementia patient had co-morbid diabetes mellitus (c^2 = 2.4287, P= 0.11913), history of cerebro vascular accident (CVA) was present in 25% of patient and 25% patient had history of smoking (c^2 = 0.0088, P= 0.92533). This study provided baseline information about clinical factors associated with dementic patients in Bangladesh which could be used in future studies.

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Introduction

Dementia is one of the major causes of morbidity in the elderly population. Although it is common after the age of 65 years, it can occur before the age of 65 years.[1] Dementia is defined as a syndrome associated with range of diseases which are characterized by the progressive impairment of brain functions, including memory, language, perception, personality and cognitive skills.[2] World Health Organization (WHO) estimated that 35.6 million people worldwide were living with dementia in 2010.[3] The common causes of dementia include Alzheimer's disease, vascular dementia, Lewy body dementia, fronto-temporal dementia, traumatic brain injury, substance, Parkinson's disease etc.[4] Age, gender, smoking, hypertension, diabetes mellitus, dyslipidemia, head trauma, depression and genetic factors are considered as risk factors for dementia.[5]

The prevalence of dementia is approximately 5% in general population older than 65 years of age, 20-40% in general population older than 85 years, 15-20% in outpatient general medical practices and 50% in chronic care facilities.[6] Dementia has been identified as one of the major causes of disability in later life. It accounts for 11.9% of the years lived with disability due to a non-communicable disease.[7] Dementia is associated with increased mortality rate. Several studies have shown that people with dementia have markedly decreased survival rate than people without dementia.[8-10] Among all chronic diseases, dementia makes the largest single contribution to disability and needs for care among older people.[11] In Bangladesh, there is almost no data on different variables of dementia due to absence of epidemiological studies. With the world's eighth largest population with 160 million people, the percentage of people aged more than 60 years in Bangladesh is projected to increase to 9% by 2025 and 21% by 2050. It is estimated that the number of people with dementia will be 4,60,000 by 2015 and 8,34,000 by 2025 and 21,93,000 by 2050.[12]

Considering the above mentioned facts on the dearth of data on dementia in Bangladesh and its huge importance have impelled the author to take on the study. The objective of the study was to find out the physical illness and dementia as well as their association among the elderly patients.

Materials and methods

This descriptive cross sectional study was conducted in National Institute of Mental Health (NIMH) at Sher-e-Bangla Nagar, Dhaka, Bangladesh during the period from 1st November 2014 to 30th April 2015. For this purpose 78 elderly patients aged e"60 years attending both in outpatient and inpatient department of NIMH satisfying inclusion and exclusion criteria, irrespective of age and gender were selected as study population by convenient sampling technique. Patients with acute confusional state, acute physical illness and severe visual or hearing impairment were not included in this study. Informed consent was taken from each patient before enrollment in this study. Ethical issues were maintained properly. The respondents were interviewed face to face using a structured questionnaire containing information like type of service, physical illness, duration of physical illness, smoking etc. Cognitive impairment was assessed by Bangla version of mini mental state examination (MMSE) and dementia was diagnosed according to Diagnostic and Statistical Manual of Mental Disorder (DSM 5).[13] The interviews were held in a peaceful and non-threatening environment. After collecting data, editing was done manually and was analyzed with the help of Statistical Package for the Social Sciences (SPSS) software package version 16.

Results

A total of 78 respondents, 10.2% were selected from the inpatient department and 89.7% were from the outpatient department. Majority of the male (88.6%) and female (91.2%) were taken from outpatient department (Table 1). Most (59%) of the respondents had physical illnesses (Figure 1). Among the group suffering from physical illness, 20 (43.5%) patients had been suffering for 5 to 10 years and 16 (34.8%) patients had been suffering for less than 5 years (Figure 2). In the present study, the common physical conditions were hypertension (26.9%), cataract (19.57%), diabetes mellitus (10.87%) and ischemic heart disease (10.87%) (Table 2). Among the respondents 5 (6.4%) were current smokers and 12 (15.38%) had past history of smoking for more than five years (Table 3). One (25%) patient had history of smoking ($c^2 = 0.0088$, P= 0.92533) (Table 4). Only 4 (5.1%) were diagnosed as dementia among the respondents whose MMSE score were d"23. Two (50%) of the respondents diagnosed with dementia had hypertension ($c^2 = 3.8808$, p = 0.04884). One (25%) dementic patient had co-morbid diabetes mellitus ($c^2 = 2.4287$, p = 0.11913) and history of cerebro vascular accident (CVA) was present in one (25%) patient (Table 5).

Table 1: Distribution of respondents according to types of service received (n=78)

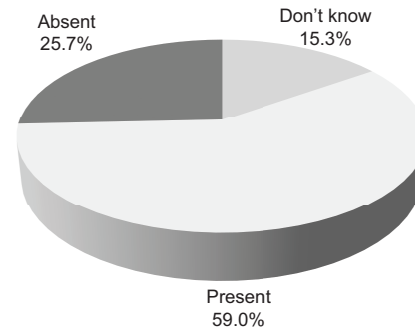| Types of service	Male Number (%)	Female Number (%)	Total Number (%)
Outpatient service	39 (88.6)	31 (91.2)	70 (89.7)
Inpatient service	5 (11.4)	3 (8.8)	8 (10.3)

Figure 1: Presence of physical illnesses (n= 78)
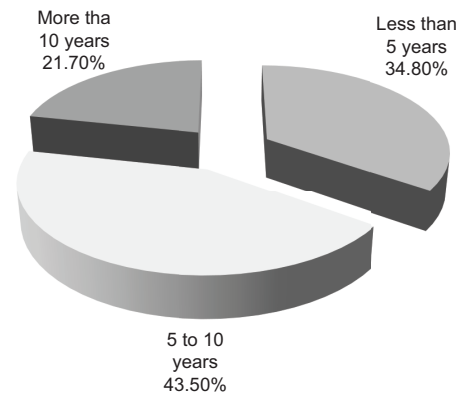

Figure 2: Duration of physical illness (n= 46)

Table 2: Types of physical illness (n= 46)

Types of physical illness	Male	Female	Total
Hypertension	7(25.9%)	5(26.3%)	12(26.1%)
Diabetes mellitus	3(11.1%)	2(10.5%)	5(10.8%)
Cataract	5(18.5%)	5(26.3%)	10(21.7%)
Chronic obstructive pulmonary disease	2(7.4%)	1(5.2%)	3(6.5%)
Ischemic heart disease	4(14.8%)	1(5.2%)	5(10.8%)
Rheumatological disorders	1(3.7%)	2(5.3%)	3(6.5%)
Urological disorders	3(11.1%)	0 (0%)	3(6.5%)
CVA	1(3.7%)	1(5.2%)	2(4.4%)
Anemia	0 (0%)	2(5.3%)	2(4.4%)
Parkinson's disease	1(3.7%)	0 (0%)	1(3.7%)
Total	27 (100%)	19 (100%)	46 (100%)

Table 3: History of smoking of the respondents (n= 78)

History of smoking	Frequency	Percentage
Absent	61	78.2
Current smoker	5	6.4
Past smoker	12	15.4

Table 4: Association between smoking with dementia (n= 78)

Smoking	No dementia (n=4)	Dementia (n=4)	p value
No	57 (77.02%)	3 (75%)	$\chi^2 = 0.0088$
Yes	17 (22.9%)	1 (25%)	p = 0.92533

Table 5: Association between physical illness with dementia (n= 78)

Physical illness	No dementia (n=74)	Dementia (n=4)	p value
Hypertension			
No	64 (86.4%)	2 (50%)	$c^2 = 3.8808$
Yes	10 (21.7%)	2 (50%)	p = 0.04884
Diabetes mellitus			
No	70 (94.5%)	3 (75%)	$c^2 = 2.4287$
Yes	4 (5.4%)	1 (25%)	p = 0.11913
CVA			
No	73 (98.6%)	3 (75%)	$c^2 = 8.4948$
Yes	1 (1.3%)	1 (25%)	p = 0.00356
Ischemic heart disease			
No	69 (93.2%)	4 (100%)	$c^2 = 0.2888$
Yes	5 (6.7%)	0 (0%)	p = 0.59100
Rheumatological disorders			
No	71 (95.9%)	4 (100%)	$c^2 = 0.1686$
Yes	3 (4.0%)	0 (0%)	p =0.68132

Discussion

In the present study, 59.8% of the respondents had known physical illness. The common physical illnesses were hypertension (26.9%), cataract (19.57%), diabetes mellitus (10.87%) and ischemic heart disease (10.87%). Two (50%) older person with dementia in this study had hypertension and it was found to be significant ($c^2 = 3.8808$, p =0.048). Diabetes mellitus was present in one (25%) dementia patient. A Spanish study found that hypertension and diabetes were the co-morbidities most frequently found in older people with dementia.[14] Although, the analysis revealed these conditions as frequent in older people in general, there were some other conditions that appeared to be significantly associated with dementia like Parkinson's disease, congestive heart failure, cerebrovascular disease, osteoporosis, insomnia etc. Other international studies had similar results.[15,16]

In other hand hypertension had been associated with a wide variety of cognitive deficits, including reduced abstract reasoning (executive dysfunction), impaired memory, attention deficit, and slowing of mental processing speed. Some longitudinal studies also revealed that, individuals who developed dementia had a history of high blood pressure earlier in life.[17-19] Type 2 diabetes had consistently been shown to be associated with increased risk for dementia.[20] Majority of the previous studies showed a higher rate or risk for cognitive decline in diabetic subjects compared with non-diabetic subjects but some showed no association between the rate of cognitive deterioration and diabetes status.[21-23] Differences between studies might be attributed to the cognitive status and age range of subjects included, as well as to the tools used to measure cognitive status and the definition of cognitive decline.[22] These differences also reflected different roles for diabetes as a risk factor for dementia and in the rate of disease progression.

In current study, among the respondants, 5 (6.4%) were current smokers and 12 (15.38%) had past history of smoking for more than five years. 25% patients had history of smoking among dementia (c^2=0.0088, p =0.92533). In this regard with environmental tobacco smoke exposure, the increased risk of dementia was found in a previous study.[24]

Conclusion

Despite a number of limitations, this study provides baseline information about physical illness associated with dementia among elderly patients in Bangladesh. When assessing an elderly patient, the presence of dementia should always be taken into consideration and more efforts should be given in the assessment and management of this disorder.

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