

Study of Dementia: One Year Prevalence and Associated Variables

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Abstract

Study of Dementia: One year prevalence and associated variables with the aging of the population, the prevalence of dementia is increasing. Along with the memory and cognitive impairment, behavioural and psychological manifestations are also very common in dementia.

Aims and Objectives: 1. To determine the prevalence of dementia at the out-patient department of Psychiatry, B.A.R.C. Hospital, in a span of one year. 2. To differentiate the different types of dementia. 3. To study the socio-demographic and illness related variables. 4. To study the occurrence of medical and psychiatric morbidity.

Methods: The medical records of all patients who had consulted at the Psychiatric out-patient department during a period of one year were screened. Of these, the records of patients who had received a diagnosis of dementia were studied in detail for socio-demographic and illness related variables.

Results: The prevalence of dementia in patients above 50 years of age was found to be 10.2% with Alzheimer's dementia and vascular dementia being the most common types of dementia. 59% of the patients were either partially or totally dependent on their care-givers. Behavioural and psychological manifestations and vascular comorbidities were common in patients with dementia.

Conclusions: There should be emphasis on early diagnosis and adequate care-giver support in the overall management of dementia.

Introduction

According to the World Health Organisation (WHO), India's population of those aged over 65, is likely to be 108 million by 2025 and 240 million by 2050. This means a several-fold increase in age-related problems such as dementia.¹

It is estimated that by year 2020, eight million individuals in India will be affected by dementia.²

Dementia is a progressive decline in

memory and cognitive functioning in clear consciousness which causes impairment in socio-occupational functioning.

The risk of dementia increases with age. The most common causes of dementia are Alzheimer's disease followed by vascular dementia and mixed Alzheimer's and vascular dementia. Certain medical illnesses can contribute to the onset of dementia and worsen the cognitive dysfunction.^{3,4} There may even be reversible causes of dementia that, when treated, can result in improvement in cognitive symptoms and functioning.^{3,4} In addition, neuro-psychiatric and

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behavioral manifestations are very common in dementia and can be as distressing and disabling as the primary cognitive disorder itself.^{3,4}

The 10/66 Dementia Research Group (10/66) was founded ten years ago at the annual conference of Alzheimer's disease International (ADI) in Cochin, India. This group recommended that more research was needed to describe prevalence and incidence of dementia. It also focussed on description of care arrangements for people with dementia, quantifying the impact upon caregivers and evaluating the effectiveness of new services for people with dementia and their caregivers.²

Epidemiological reports about dementia in elderly people from developing countries, including India, are sparse.^{5,6} We perceive that lack of awareness as well as lack of resources may be the causative factor.

In this regard, it would be interesting to note that our study population has some unique characteristics when compared to the rest of the population in India. This is a relatively stable population which beneficiaries of a contributory health service scheme receiving comprehensive, high quality health care free of cost. Thus many factors that might prove to be limitations in a developing country like India, are eliminated.

It has been strongly recommended that health care systems existing in developing countries will need to be kept updated on the changing demands and it is critical to prepare oneself for this upcoming explosion in the number of mentally ill elderly persons.⁷

Hence we decided to conduct this simple pilot study to help us define the mental health needs of the geriatric population so as to improve the services as well as to outline the different areas for further research that could be beneficial to society at large.

Aims and Objectives

1. To determine the prevalence of dementia at the out-patient department of Psychiatry, B.A.R.C. hospital, in a span of one year.
2. To differentiate the types of dementia in these patients.
3. To study the socio-demographic and illness related variables.
4. To study the occurrence of medical and psychiatric morbidities in these patients.

Materials

1. Medical and Psychiatric case Records at B.A.R.C. Hospital
2. Semi-structured proforma to record the information

Methods

1. The Medical and Psychiatric records of all patients who had consulted as out-patients at the Dept. of Psychiatry, B.A.R.C. Hospital, during a period of one year were screened.
2. The records of all those patients who had reported cognitive impairment were considered further evaluation.
3. Of these, the records of the patients, who had received a diagnosis of dementia according to the Diagnostic and Statistical Manual IV, Text Revision (DSM IV TR) were selected.
4. The socio-demographic and illness related variables were noted using the

specially designed proforma.

Inclusion Criteria

1. Patients who had received a diagnosis of dementia according to DSM IV TR criteria

Exclusion Criteria

1. Patients whose records showed insufficient or incomplete data
2. Patient deceased

Results

Prevalence of Dementia

A total of 1926 patients were screened. Of these patients 149 patients were found to have reported cognitive impairment of some kind.

These patients were studied further and of these 16 records had to be excluded.

Of the remaining 133 patients, 112 patients had been diagnosed as dementia and 21 were found to have been diagnosed as having mild cognitive impairment.

Thus the prevalence of dementia among the psychiatric out-patient population in a span of one year was 5.8%. However, it is important to note that dementia is almost exclusively a disease of old age and the patients screened were from all age groups.

The number of patients above the age of 50 were 1097 and if only these patients were considered then the prevalence of dementia rose to 10.2%.

The socio-demographic variables

Age: Mean age of the patients in our study was 72.75 years.

Sex: The total number of male patients were 65 while the number of female patients were 47.

Marital status: 70 patients i.e 62.5% of the patients were married, while 34

patients i.e. 30.3% were widowed. 6 patients i.e. 5.35% were unmarried and 2 had separated from their spouses.

Care -Givers: In 29 patients i.e. 25.8% of patients, the spouse was the sole caregiver. In 31 i.e. 27.6% of the patients, one child was the main care-giver. The rest of the patients had multiple care givers; either both spouse and children or multiple children or attendants or siblings to share the burden of care.

Different types of Dementia

Table 1 : Shows the prevalence rates of the different types of Dementia.

Table 1: Different types of Dementia

Type	No. of patients	Percentage
Alzheimer's Dementia	47	41.9%
Vascular Dementia	39	34.8%
Dementia due to Multiple Aetiologies	8	7.14%
Dementia not otherwise specified	6	5.35%
Dementia due to General Medical condition	10	8.9%
Substance Induced Persisting Dementia	2	1.78%
TOTAL	112	

The illness related variables

Age at first presentation

The mean age at first presentation as noted in our study was 70.5 years.

Duration of illness

The mean duration of illness was found to be 2.65 years

Activities of Daily Living

As per the records, 46 patients i.e. 40.8% patients were independent in the activities of daily living. 34 patients i.e. 30.65% were found to be partially dependent while 32 patients i.e. 28.57% were completely dependent on their care

givers for the activities of daily living.

Investigations

Apart from routine investigations, the two main types of investigations that were carried out to ascertain the diagnosis of dementia or determine its severity were as follows:

Neuro-Psychological Testing

On perusal of the records, it was found that formal neuropsychological testing was not attempted in all patients.

Among the patients in whom it was attempted, it was found that memory was the most commonly impaired domain on cognitive testing on the Weschler Memory Scale.

Bender Gestalt Test had revealed signs of organicity in 92% of patients in whom it was attempted. Thus, among those patients in whom this test was attempted, only 8% of the patients did not reveal any sign of organicity despite having a diagnosis of dementia.

Neuroimaging studies

Neuroimaging studies were also not done in all the patients.

It was found that those patients who were found to have generalised cerebral and cerebellar atrophic changes on magnetic resonance imaging (MRI) scans of the brain, had received a diagnosis of Alzheimer's type of dementia.

4 patients had also undergone fluoro-deoxy glucose positron emission tomography (FDG PET) scans. These showed decreased uptake in temporal lobes and hippocampi. They were also diagnosed with Alzheimer's dementia.

The patients who had been diagnosed with vascular dementia patients had

multiple lacunar infarcts, focal infarcts suggestive of old cerebro-vascular accidents (CVAs) and extensive periventricular ischaemic changes as the most common findings on the MRI scans of the brain.

Medical Co-morbidities: Table 2 shows the prevalence of different medical co-morbidities.

Table 2: The prevalence of the medical co-morbidities

Illness	Percentage
Diabetes Mellitus	30%
Hypertension	57.14%
Ischaemic Heart Disease	50%
Bronchial Asthma	9.8%
Cerebro-Vascular Accident	10.7%

Prevalence of Behavioural and Psychological Manifestations

In our study, 45 patients i.e. 40% of the patients had a pre-existing psychiatric diagnosis.

85 patients i.e. 76% of the patients had some one or more behavioural and psychological manifestations of dementia.

Table 3 shows the different behavioral and psychological symptoms seen in the patients.

Table 3: Behavioural and psychological symptoms

Illness	Percentage
One or more behavioural and psychological manifestations	76%
Anxiety-depressive symptoms	21%
Psychotic symptoms	20%
Behavioural disturbances	32%
Sleep disturbances	30%
Unstable mood	15%

Discussion

Prevalence of Dementia

The prevalence of dementia in the USA was reported at 13.9% among individuals

aged 71 years and older.⁸ The extensive studies from developed countries have provided a range of prevalence between 3.8 and 10% in the age group above 65 years of age.^{1,9}

Previous studies in India focusing on the community have found a prevalence rates of 3.39 - 3.5 % in rural community^{10,11} and 2.4 - 2.7% among the urban community.^{12,13}

Recent studies by Poddar et al in 2011¹⁴ and Raina et al in 2008¹⁵ have reported higher prevalence rates of 5.1% and 6.5% respectively.

The higher prevalence rate in our study is most likely due to the fact that this study assessed prevalence at the Psychiatry out-patient department and not at the community level. Studies done in general - outpatient populations abroad have found a higher prevalence rate of 15 to 20%.^{3,4}

Different types of Dementia

In our study, Alzheimer's was the most common type of dementia noted. This was followed by vascular dementia. This concurs with research done all over the world wherein Alzheimer's was the commonest type of dementia seen in 60-80% of the patients and vascular dementia seen in 20-40% of the patients.^{3,4}

Socio-demographic variables

Age

The mean age of the patients at the time of study was 72.75 years. This is in keeping with a recent Indian study by Saldanha D, et al¹⁶ in which the mean age of the sample was 71.94 years.

Sex

In our study, there were more number of male patients than female patients.

International studies indicate conflicting findings. Some studies show that women are more at a risk of developing dementia as compared to males^{8,17} while other studies show no significant difference.^{18,19}

The reason commonly given for this is that women tend to live longer than men and thus would be expected to have a higher prevalence of dementia.²⁰

The reason for increased number of male patients in our study, could perhaps be explained in the socio-cultural context wherein elderly males may continue to be actively engaged in activities such as banking for availing pension, reading the newspaper etc. which may make cognitive deficits more apparent in them. Elderly females on the other hand may be involved in relatively simple roles within the household, while the more complex tasks like cooking or buying of grocery may be delegated to the younger generation. This may result in a delay in detection of cognitive deficits in them. Also, in our study, we had several patients with vascular dementia and as vascular risk factors are more in males, we probably had more male patients.

Marital Status

Majority of the patients in our study i.e. 62.5% were married. This is in keeping with a recent Indian study.¹⁶

Marital status has been known to be a predictor of longevity and our findings perhaps probably reflect this longevity. Some studies have shown that being unmarried or separated was associated with an increased risk for dementia.^{14,16,21} Poddar K. et al¹⁴ postulated that this could be due to better social life in the married

persons. As ours was not a comparison study, we did not evaluate this and further research would be needed to comment on this association.

Primary Care-giver

In 25.8% of the patients, the spouse was the sole care-giver. It has to be understood that the spouse too is elderly and may be suffering from cognitive impairment or medical illnesses as well. Hence adequate support to the care-giver must be one of the cornerstones for the comprehensive management of the dementia patient.

Illness related variables

Age at presentation

The mean age at first presentation was 70.5 years. The risk of dementia increases with advancing age. Hence there is a need to detect the disorder as early as possible.

In India, forgetfulness and dementia are perceived as a normal, anticipated part of ageing. The awareness of dementia as an organic brain syndrome or indeed as any kind of medical condition is very low.²²⁻²⁴ Assisting the elderly with their day to day activities is the norm in most families. It is only when the patients are severely cognitively impaired or behaviourally disturbed that the care-givers begin to consider the possibility of an illness. Increasing awareness about dementia^{25,26} may lead to perhaps make more care-givers seek timely help.

Also, with more and more elderly people living by themselves, even mild cognitive impairment may prove significantly disturbing for the patient in his day to day life, making them seek medical help. Thus the mean age at

presentation may decrease in the next few years.

Duration of illness

The mean duration of illness in our patients was found to be 2.65 years. Different studies have estimated the duration of survival after the onset of dementia to be between 4-12 years.²⁷⁻²⁹

Activities of daily living

In our study, more than half of the patients were partially or completely dependent on their care-givers. Dementia affects abilities to independently perform activities of daily living (ADL) such as grooming, toileting and eating. Instrumental ADL includes complex activities such as meal preparation; driving, decision making and banking, are adversely impacted earlier.³⁰

Investigations

In our study, we noted that neuropsychological tests had not been performed on all patients. The common documented reasons for not doing the tests were that patients did not have their glasses or hearing aids with them, they could not wait for the tests as they had taken appointments with multiple specialties on the same day, they felt that they could not do the test so they refused, they were uncooperative for the test or that clinically they were already in an advanced stage of dementia, so formal testing was not attempted. Among those patients, who did take the tests, most patients performed poorly. Due to considerable differences in methodology among different studies, it is difficult to compare the findings on neuropsychological testing. However, a recent Indian study found that patients

with dementia performed poorly on the cognitive test battery.¹⁶

Neuroimaging has its relevance in aiding diagnosis in the borderline cases with clinical confounding and also in refining the diagnosis, assessing prognosis and in some cases monitoring the treatment. On the MRI sections, vascular dementia is invariably associated with an increased prevalence of infarcts and more extensive white matter change and frontal lobe atrophy is more prominent in frontotemporal dementias.³¹

A study by Saldanha D. et al¹⁶ found that Alzheimer's dementia had both gray and white matter involvement (74.5%). Predominantly cortical gray matter involvement was seen in 8.1% cases of Alzheimer's dementia and 7.7% cases of vascular dementia. These findings are in keeping with the ones in our study.

Medical Co-morbidities

The Medicare Alzheimer's Disease Demonstration (MADD)³² study reported the prevalence of pre-existing medical conditions in a large sample of dementia patients. The results showed that a substantial number of study subjects had other chronic conditions like hypertension, coronary artery disease, diabetes mellitus, COPD, congestive heart failure, osteoarthritis, stroke, cancer, chronic renal disease etc.³² Our study also showed similar findings.

The high prevalence of medical co-morbidities indicates that such patients are at a very high risk for developing dementia. We would like to point out that such patients are also likely to already be on a multiple drug regimen which could

result in the possibility of increased drug interactions, hepatic and renal toxicities and non-compliance. These illnesses may also contribute to increased cost of treatment.

Behavioural and Psychological symptoms of Dementia

Behavioural and psychological symptoms of dementia (BPSD), a label coined at an international consensus conference convened by the International Psychogeriatric Association Task Force in 1996,³³ refers to disturbances such as anxiety, depression, agitation, aggression, delusions, hallucinations, inappropriate sexual behaviour, wandering, insomnia, and other noncognitive symptoms that may arise in the context of a dementing illness.

A large community-based study which screened 5092 individuals aged 65 years and older estimated that the point prevalence of any neuropsychiatric disturbance in individuals with dementia was 61%; the point prevalence for any serious disturbance was 32%.³⁴

A 10/66 Dementia Research Group study which evaluated subjects from 21 centres in 17 developing countries found at least one behavioural symptom to be present in 70.9% of persons with dementia.³⁵

Other research by Okura T et al,³⁶ has also shown similar findings. This is in keeping with the findings in our study.

However, it is important to keep in mind that 405 of the patients in our study did have a pre-existing psychiatric diagnosis. Further research would be required to ascertain whether the existing

condition worsened due to dementia or newer symptoms were seen after the onset of dementia.

These symptoms indicate a poor prognosis because they cause increased care-giver burden, poorer quality of life and increased likelihood of institutionalisation.^{37,38}

Conclusions

1. Prevalence of dementia was 10.2% in patients above the age of 50
2. Alzheimer's dementia and vascular dementia were the most common type of dementias noted
3. Approximately 58% of the patients are dependent on their care-givers either partially or totally
4. Diabetes, hypertension and ischaemic heart disease were the commonly noted medical co-morbidities.
5. Behavioural and psychological symptoms are common in dementia

Recommendations

Increasing awareness about dementia in the community and vigilance about cognitive impairment in patients with vascular risk factors can contribute to early diagnosis. Screening of the spouses can also be an effective method to reach out to more elderly people.

A standardised record sheet and a simple scale for assessment of the severity of dementia needs to be developed that can be assessed meticulously at each follow up. This is very important because it will not only give us valuable information about the course and outcome of the disease but also an idea about the cost effectiveness of the current treatment modalities.

Care-giver education and support will reduce the need for psychotropic medications and prevent care-giver burn out.

There is a need for specialised institutions that provide care for patients with poor social support.

Limitations

This was a simple prevalence study, statistical comparisons and correlations could not be done. Impact of socio-demographic variables like education and social network was not assessed. The assessment of the patients was clinical. No formal scales had been applied for assessing the severity of the symptoms.

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The prevention and management of rabies

Pre-exposure vaccination is strongly recommended for anyone who is at "continuous frequent or increased risk for exposure to the rabies virus."

Post-exposure prophylaxis is highly effective in preventing the virus from reaching the nervous system.

If the animal in question is a dog, cat, or ferret and can be observed for 10 days, post-exposure prophylaxis may be started and discontinued if the animal remains well at the end of the observation period. While most countries use a five dose schedule, several have now adopted a WHO recommended four dose schedule, with vaccine administered intramuscularly at 0.1 ml on days 0, 3, 7, and 14. With this reduced schedule, rabies immunoglobulin is recommended for category II Nibbling of uncovered skin; minor scratches or abrasions without bleeding as well as category III Single or multiple transdermal bites (Bites especially on the head, neck, face, hands, and genitals are category III exposures because of the rich innervation of these areas) or scratches, licks on broken skin; contamination of mucous membrane with saliva (that is, licks) exposure to bats exposures.

The incubation period after a bite may be as short as a few days or as long as years, and depends on the animal, viral inoculum, and location of the bite. However, most cases present within the first two months after inoculation. Prodromal symptoms are often non-specific, resembling systemic viral infections, although there may be initial neuropathic pain at the site of the bite or weakness of the affected limb. Signs suggestive of rabies include intense pruritus, beginning at the site of the bite and progressing to involve the limb or side of the face, and myo-oedema, a mounding of the muscle elicited by being struck with a reflex hammer and that resolves within seconds.

Prodromal symptoms are quickly followed by the acute neurological phase, when the virus manifests itself in the central nervous system. This phase is referred to as paralytic or furious rabies, and progression towards coma and death occurs within one to two weeks from the onset of neurological dysfunction.

A private room is recommended to provide these measures; however, additional barrier precautions are not required as the virus is transmitted through a break in skin and not through inhaled droplets or contact with blood or faeces.

Pre-exposure vaccination should be considered by travellers to endemic areas who are likely to come in contact with animals, or short term travellers making repeated visits. Short term travellers to rabies endemic countries with ready access to medical care while travelling may choose **not** to have pre-exposure vaccination as the risk is lower, immunisation is expensive, and pre-exposure vaccination is often not publicly funded or covered by health insurance.

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