Original Article

COMPARATIVE ASSESSMENT OF PSYCHIATRIC COMORBIDITY, SUBSTANCE USE, QUALITY OF LIFE IN PATIENTS WITH EARLY AND LATE ONSET DEMENTIA

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ABSTRACT

According to the definition provided by the World Health Organization (WHO, 2017), dementia is "an umbrella term for several diseases affecting memory, other cognitive abilities and behaviour that interfere significantly with the ability to maintain daily living activities. Although age is its strongest known risk factor, dementia is not a normal part of aging". The associated brain diseases can cause a long-term, often gradual decrease in cognitive abilities, "emotional problems, language difficulties and decreased motivation". The definition provided by the
U.S. National Institute of Neurological Disorders and Stroke (NINDS, 2018) is more detailed in stating that dementia is "a group of symptoms caused by disorders that affect the brain. It is not a specific disease" and "memory loss is a common symptom of dementia. However, memory loss by itself does not mean having dementia. People with dementia have serious problems with two or more brain functions, such as memory and language. Although dementia is common in very elderly people, it is not part of normal aging.[1]

Many different diseases can cause dementia, including Alzheimer disease (AD), frontotemporal dementia (FTD), Lewy body dementia (LBD), vascular dementia (VD), syphilitic dementia (SD), mixed dementia (MD), senility dementia (SD), or the combined effect of two or more dementia types, and even stroke. About 10% of individuals present with Mixed Dementia, a usual combination of AD and another type of dementia such as FTD or VD. However, not being a specific disease, the above potential contributors do not reach to the primary cause of the disease.

KEY WORDS: dementia, Alzheimer disease , Lewy body dementia , vascular dementia , syphilitic dementia, mixed dementia , senility dementia .

INTRODUCTION

Most common early-onset neurodegenerative dementia is EOD. Vast majority of the cases are non-familial as indicated in few Epidemiological studies, making up about 4–6% of all Dementia, with an annual incidence rate of about 6.3/100,000 and a prevalence rate of about 24.2/100,000 in the

45–64 year age group, or between 220,000 and 640,000 Americans . As patients approach age 65 these incidence and prevalence rates rise exponentially. Since EOD is often atypical it is unfortunately missed often, leading to a 1.6-year average delay in diagnosis compared to older patients. Yet, EOD accounted for a more number of premature deaths among US adults aged 40–64 with many years of potential life lost as well as losses in productivity based on a mortality report from 1999 to 2010.[7,8]

Based on the greater extent of evaluation required for diagnosis EOD differs from LOD. The increased impact of dementia risk factors such as lower cognitive fitness and cardiovascular fitness, and the potentially increased consequence of traumatic brain injury lower the age of onset of dementia.[9] Also there are psychosocial problems specific to early-onset dementia , such as the effects of grief with a sense of an "out- of-step" decline in midlife, unexpected loss of independence, difficulty juggling ongoing responsibilities, and relatively preserved insight with associated depression and anxiety. Since the autosomal dominant familial dementia tends to be of early onset, People belonging to the subgroups of EOD generally presents with higher rates of neurological symptoms and the risk of development of dementia is also greater in these subgroups compared to LOD. In contrast, compared to LOD, EOD patients have decreased overall comorbidities such as diabetes, obesity, and circulatory disorders .[9,10]

METHODOLOGY

The study was an analytical cross-sectional comparative study conducted in maheshwara medical college , to determine the psychiatric morbidity, substance use, quality of life in persons with early onset and late onset dementia and to compare the differences in above factors between early onset and late onset dementia.

Study duration

The data collection was carried over a period of one year after obtaining ethical clearance from the Institutional Human Ethical Committee (IHEC) of maheshwara medical college and hospital,isnapur.

Study population

Patients diagnosed as dementia as per ICD-10 criteria.

inclusion criteria

Patient diagnosed as dementia as per ICD-10 criteria
Patients and caregivers who give written and informed consent
Both males and females

Exclusion criteria

No reliable informant

- Not given informed consent
- Acute confusional state
- Cognitive impairment due to primary psychiatric illness
- Past history of any major psychiatric illness except substance use

- **Sample size**
- Total sample size = 60
- 30 early onset and 30 late onset dementia based on the age of
- onset.
- **Sampling Procedure**
- Patients newly diagnosed with dementia as per ICD -10 were continuously enrolled for the study after obtaining informed consent. The enrolment was continuous till the adequate sample size was achieved. Necessary precautions were made to have a sample of 30 in early onset and 30 in late onset dementia types.

Data Collection procedure

- After obtaining permission from the Institutional Human Ethical Committee, written and informed consent from the eligible participants were obtained.
- As per sample size, 60 patients diagnosed with dementia according to ICD – 10 criteria were selected for the study
- Cases for the study were selected from newly diagnosed outpatients and in patients at Institute of mental health, MMC.
- Study sample had been grouped into two categories as early onset and late onset dementia (30+30) based on the age of onset (< 65)
- DEMENTIA SEVERITY RATING SCALE will be administered to grade the severity of dementia

- Psychiatric comorbidity and substance use were assessed using MINI PLUS INTERNATIONAL NEUROPSYCHIATRY INTERVIEW scale
- Quality of life was measured using DEMQOL & DEMQOL proxy scale

Table 1: Distribution of the socio-demographic variables among the patients (n=60)

Socio-demographic variables		**Summary statistics**
Age of patients, mean (±SD)		67.92 (8.25)
Gender, n(%)	Male	33 (55%)
	Female	27 (45%)
Care taker, n(%)	Daughter	17 (28.3%)
	Wife	23 (38.3%)
	Daughter in law	5 (8.4%)
	Husband	5 (8.3%)
	Son	5 (8.3%)
	Sister	3 (5%)
	Warden	2 (3.4%)

The distribution of the socio-demographic characteristics sis shown in table 1. The average age of the participants was 67.92 (8.25 years). More than half (55%) were males. Majority of the patients were accompanied by their wife (38.3%) and daughter (17%).

Table 2: Distribution of the socio-demographic variables among the two patient groups

Socio-demographic variables		**Late onset dementia (n=30)**	**Early onset Dementia (n=30)**	**p value**
Age of the patients, mean (±SD)		74.53 (5.70)	61.3 (3.92)	<0.001*
Gender, n(%)	Male	14 (46.7%)	19 (63.3%)	0.194#
	Female	16 (53.3%)	11 (36.7%)	
Care taker, n(%)	Daughter	11 (36.7%)	6 (20%)	0.005#
	Wife	7 (23.3%)	16 (53.3%)	
	Daughter in law	3 (10%)	2 (6.6%)	
	Husband	0	5 (16.7%)	
	Son	5 (16.7%)	0	
	Sister	3 (10%)	0	
	Warden	1 (3.3%)	1 (3.3%)	

p value by independent t test ***#p value by chi-square test***

Table 2 shows the distribution of the socio-demographic characteristics among the two groups- early and late onset dementia. The patients in late onset category were significantly older than the other group. However, majority of the patients in early onset were males (63.3%) and hence a little more half of the patients (53.3%) were accompanied by their wife.

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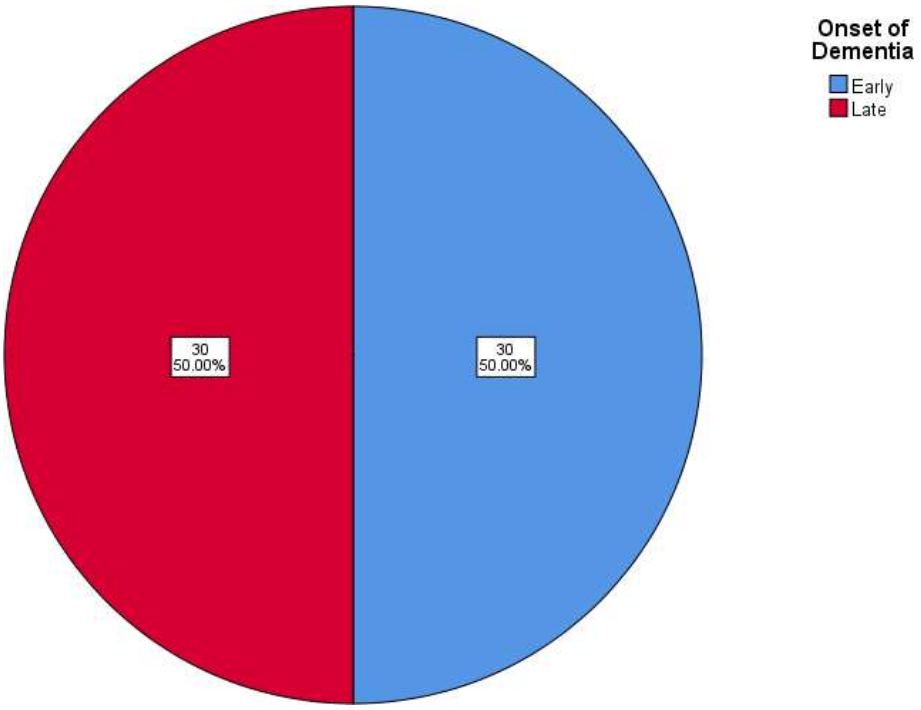
Figure 1: Distribution of the onset of dementia among the patients (n=60)



Among the 60 patients studied, 30 (50%) belonged to early onset dementia and the remaining 50% belonged to late onset dementia. (Figure 1).

DISCUSSION

This study was done among 60 dementia patients out of which 55% were males and 45% were females, 30 patients with early onset of Dementia and 30 patients with late onset of dementia were included in the study. McMurtray et al in their study demonstrated that Early Onset of Dementia (EOD) is a significantly under recognized subgroup of patients with dementia. investigation of all patients presenting to a memory disorders program found that nearly 30% of patients with dementia had an age of onset of less than 65 years. When compared with similar patients with late-onset disease, these EOD patients had more treatable or preventable conditions and less AD.[57]

The mean age of presentation of dementia in the present study is 68; the mean age for late onset dementia being 75 and for early onset dementia mean age is 62. The patients in late onset category were significantly older than the other group. However, majority of the patients in early onset were males (63.3%) and hence a little more half of the patients (53.3%) were accompanied by their wife. These values are supported by Shiming Z et al where the mean age of presentation for dementia is 69.6, Where as a study done by Sumana et al shows advanced age of presentation (81years).[58]

In the present study, 55% patients were male and rest being female (45%). Among cases of late onset dementia female preponderance (53.3%) and among cases of early onset dementia male dominance (63.3%) was seen. There was no statistically significant variations in gender prevalence of early and late onset dementia. Sumana M. et al in their study of prevalence of dementia and other psychiatric comorbidities in geriatric population showed similar prevalence rates (65% among females and 35% males).[58] In contrary to these findings, a study by McMurtray et al shows a significantly high male preponderance (98%).[57]

In the recent study the prevalence of major depressive attacks among dementia patients were 8%

and depression with psychotic behavior was 2%. Our finding is supported by a study done by Chauhan P et al among geriatric population of South India where the prevalence of depression is 9.3 %. This is significantly different from the findings of Sumana et al, where the prevalence of depression among dementia patients were 60 %.[58] Nandi et al. (1997) in a rural community of Gambhirgachi and Paharpur villages, West Bengal found prevalence of depression as 52.2 %.[59]

There are no clear or consistent associations between socio- demographic variables. However there are some suggestions that, for a given impairment, HRQL may be worse for people who develop the illness at a relatively younger age.[60] There are intriguing possibilities of a gender difference in HRQL treatment response with women benefiting most from treatment and men doing worse than women without treatment.[61] The suggestion from one study that Latinos may have worse HRQL for a given level of dementia than the white majority is of concern even if this may be mediated by education and depression.[62]

The distribution of the Psychiatric Co-morbidity among the patients is shown in table 3. The top three psychiatric co- morbidities among the patients were F41.1-Generalized Anxiety disorder (11.7%), F10.2-Mental and behavioural disorders due to use of alcohol - Dependence syndrome (8.3%) and F32.x-Major depressive episode- current (8.3%). More than half (51.7%) didn't have any psychiatric co-morbidities. Table 6 and Figure 7 shows the distribution of the MINI plus codes among the two-patient group.

Among those with early onset dementia, the leading psychiatric co-morbidities (MINI plus codes) were A -Major Depressive Episode (16.7%), P-Generalized Anxiety Disorder (10%) and K- Alcoholic Dependence (10%). In late onset dementia patients, the top MINI plus codes were A - Major Depressive Episode (13.3%) and P-Generalized Anxiety Disorder (13.3%). The distribution of these MINI plus codes wasn't statistically significant. The findings of this study is similar to the one done by Barca et al which states that Depression was the major comorbid condition.[63]

A recent study using similar Geriatric Depression Scale reported a prevalence of 45.9%.[64] Similar rates were reported from Andhra Pradesh[2] and Uttar Pradesh.[65] Some of the studies have reported lower prevalence of Geriatric Depression also.[66,67] This variation can be explained because of different study settings.

In the present study, more than half (58.3%) of the patients didn't have any substance abuse. About 15% consumed alcohol, 11.7% tobacco and 13.3% both alcohol and tobacco. Among the two group patients with early onset dementia, an equal proportion (16.7%) of patients consumed alcohol, tobacco and both. In patients with late onset dementia, about 15% consumed alcohol, 11.7% tobacco and 13.3% both alcohol and tobacco. There is no significant association between alcohol, smoking and Dementia but Some studies revealed the association of smoking and alcohol drinking status with incidence of dementia.[68,69]

Smoking was associated with an increased rate of progression of vascular brain injury and decline in executive function a decade later.[73] Panza *et al.* [74] reported that light to moderate alcohol drinking might be associated with a reduced risk of unspecified incident dementia and AD. It has been argued that joint effects of tobacco use and alcohol on ADs.[38,75] There is substantial evidence from observational studies that conventional risk factors such as smoking, hypertension, diabetes and dyslipidemia play a role in the development of vascular cognitive impairment.[76] In recent study, interaction between tobacco and alcohol consumption with AD was investigated.

For the feeling subscores, the mean score in early onset group was 22.83 (±3.752) while in late onset group was 25.83 (±3.687). For the memory subscores, the mean score in early onset group was 13.70 (±2.277) while in late onset group was 15.30 (±3.109). Similarly, for Everyday life

scores subscores, the mean score in early onset group was 18.33 (±2.309) while in late onset group was 20.20 (±3.605). For the overall subscores, the mean score in early onset group was 1.93 (±0.740) while in late onset group was 1.93 (±0.785).

Finally, the mean total DEMQOL score in early onset group was 57.10 (±7.308) while in late onset group was 61.57 (±8.128). The Quality of life is higher in the late onset group in comparison to the early onset group which is found to be significant. Similar results were found in the study done by Banerjee et al,[78] where data suggest that behavioural and psychological disturbance and patient age are more strongly associated with quality of life than cognition or functional limitation. This is an important finding, as it suggests that cognitive improvement may be a poor proxy for quality of life improvement in dementia.

The observed association of quality of life with behavioural and psychological symptoms in dementia is intuitively understandable, and the negative effects of such symptoms on people with dementia and their carers are well understood. The association with patient age is of interest. Older patients and their care givers may find it easier to adapt to dementia because they have had more experience of dementia in their peers, because they are free of the expectations of the early retirement period, or perhaps because their peers are more accepting of dementia.

CONCLUSION

In the current study, Generalized Anxiety disorder, Mental and behavioural disorders due to use of alcohol - dependence syndrome and Major depressive episodes were the common psychiatric co-morbidities among both early and late onset dementia .

More than half of the patients didn't have any substance abuse and 15% consumed alcohol, 11.7% tobacco and 13.3% both alcohol and tobacco respectively. Similar to psychiatric co- morbidities, there was no statistical significant difference in the distribution of substance abuse (alcohol, tobacco and cannabis) in both early and late onset dementia.

In the present study, there was statistically significant higher DSRS scores among those in early onset group on comparison with the late onset group indicating higher functional disabilities among those with early onset dementia.

SUMMARY

Dementia is emerging as an important health problem of elderly people in India. Dementia is typically defined as a clinical syndrome of cognitive decline that is sufficiently severe to interfere with social or occupational functioning. EOD patients differ, on average, from LOD patients on a number of clinical, neuropsychological, neuroimaging, and neuropathological variables. Chronic use of substance like alcohol, benzodiazepines, tobacco, cannabis has been associated with significant decline in cognitive function which is likely to have impact leading to dementia. Psychiatric morbidity is more in people with dementia which affect the quality of life in elderly people.

An analytical cross-sectional comparative study was done to determine the psychiatric morbidity, substance use, quality of life in persons with early onset and late onset dementia and to compare the differences in above factors between early onset and late onset dementia.

The study was conducted among patients attending the maheshwara medical college and hospital

for a period of one year. After obtaining permission from the Institutional Human Ethical Committee, written and informed consent from the eligible participants were obtained. As per sample size, 60 patients diagnosed with dementia according to ICD – 10 criteria were selected for the study.

Study sample had been grouped into two categories as early onset and late onset dementia (30+30) based on the age of onset (< 65). DEMENTIA SEVERITY RATING SCALE will be administered to grade the severity of dementia. Psychiatric comorbidity and substance use were assessed using MINI PLUS INTERNATIONAL NEUROPSYCHIATRY INTERVIEW scale.

Quality of life was measured using DEMQOL & DEMQOL proxy scale.

The average age of the participants was 67.92 (8.25 years). More than half (55%) were males. Majority of the patients were accompanied by their wife (38.3%) and daughter (17%). Generalized Anxiety disorder, Mental and behavioural disorders due to use of alcohol - dependence syndrome and Major depressive episodes were the common psychiatric co-morbidities among both early and late onset dementia. Similarly, as per the modules in the MINI plus scale, Major Depressive Episode, Generalized Anxiety Disorder and Alcoholic Dependence were the were the common psychiatric co-morbidities among both dementia groups.

There was no statistically significant difference in the distribution of psychiatric co-morbidities in both early and late onset dementia. More than half of the patients didn't have any substance abuse and 15% consumed alcohol, 11.7% tobacco and 13.3% both alcohol and tobacco respectively. Similar to psychiatric co-morbidities, there was no statistically significant difference in the distribution of substance abuse (alcohol, tobacco and cannabis) in both early and late onset dementia.

There was statistically significant higher DSRS scores ($p<0.05$) among those in early onset group on comparison with the late onset group. In line with the DSRS scores, the quality of life as measured by the DEMQOL scale was significantly higher ($p<0.05$) in late onset dementia group on comparison with early onset dementia group. All the subscales of DEMQOL construct had significant higher scores in patients with late onset dementia.

To conclude, participants with both early and late onset dementia had no significant differences in psychiatric co- morbidities and substance abuse. However, those with early onset dementia had significantly higher DSRS scores and less QOL scores indicating higher functional disabilities and the need for early interventio in this subgroup for better quality of life.

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