ORIGINAL RESEARCH PAPER

INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

A SHORT TERM COMPARATIVE STUDY ON RISK FACTORS AND OUTCOME OF MAJOR DEMENTIA SYNDROMES

Psychiatry	
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ABSTRACT

To assess the socio-demographic factors and treatment outcome with respect to Dementia (Alzheimer disease, Vascular dementia and Mixed dementia) in patients attending a Geriatric clinic under department of Psychiatry, R.G. Kar Medical College Hospital, Kolkata, West Bengal. A Tertiary care general hospital (R.G. Kar Medical College & Hospital, Kolkata, West Bengal). Patient attending Geriatric Clinic in the Department of Psychiatry of this hospital with diagnosis of Alzheimer's dementia, vascular dementia and mixed dementia and fulfill the inclusion and exclusion criteria of the study. The proposed study is an Observational Descriptive and Comparative study. It started with Synopsis writing, in September, 2016 and finally, the thesis was submitted in September, 2018. It has been found that, in cognitive clinic of R.G Kar Medical College about 200 patients attend for the treatment.

The Alzheimer dementia is disease of aged people, mostly belong to Lower and Lower Middle class, illiterate or having primary level of education, gradual onset of disease, having family history of psychiatric illness, family history of Dementia in first degree relatives, family history of genetic illnesses, history of depression.

KEYWORDS

INTRODUCTION

Gradually over the years, a combination of high fertility and increase longevity has led to an increase in both absolute and relative number of elderly people in Africa, Asia, and Latin America. It is expected that the number of aged people in the world population will be more than 1 million by 2025. By 2025 there will be approximately 1.2 million people over the age of 60 years in the world, 72% of whom will be living in "developing countries". Throughout the world, the oldest of the old (persons with 85 years or above) are the most rapidly growing age group of the older population and prevalent in Asia and Latin America. These demographic changes influence mental health in several ways. The growth in elderly population means an inevitable increase in age related diseases, such as the Dementia.1 The senile dementia have assumed great importance in public health because of larger number of persons living into the age of risk . The word Dementia derives from the Latin word dementatus, meaning out of one's mind, and, as such, was potentially applicable to any state of psychopathology. Celsus probably first used the term Dementia in the 1st century AD, although one of the first attempts to describe an etiology beyond old age was in the 4th century AD by Oribasius, physician to the Emperor Julian. Oribasius wrote of a disease of cerebral atrophy that caused loss of intellectual capacity and weakness of movement. In 1845, Wilhelm Griesinger was the first to describe senile Dementia as a disease of the cerebral arteries. Also in the late 19th century, reports of plaques and atrophy in the brains of patients with memory deficits and mental confusion began to emerge. In 1907, Alois Alzheimer was the first to identify specific histopathological changes associated with progressive degenerative Dementia. The World Health Organisation defined Dementia as an acquired impairment of higher mental functions, including memory, the capacity to solve everyday living problems, the performance of learned skills, the current use of social skills, including all aspects of language, and the control of emotions. Each of the cognitive deficits must result in a significant impairment in functioning that represents a decline from a previous level of functioning. If patients are still working, there must be difficulties with job performance. Difficulties in managing finances or medications may also be evident. Initially there may be difficulty performing instrumental activities of daily living, and eventually basic activities of daily living. There may also be difficulties in social functioning. This may manifest as disengagement from usual activities and interests, or trouble maintaining social relationships and social roles.

from both the subject and a reliable informant. Given the nature of memory loss in Dementia, an accurate history cannot be expected to be obtained from the patient alone. Relevant aspects of the history include the onset of cognitive impairment (insidious or sudden), course (gradual or step-wise, progressive or episodic, or fluctuating), and duration of impairment. An assessment of each cognitive domain is critical. For memory, should be enquired about short-term, long-term, and remote memory. For language, should be enquired about word finding difficulties and remembering names of family members and friends. For complex attention, should be enquired about difficulties maintaining attention when there are competing stimuli; for example, an individual may have difficulty following conversation in large groups of people, or when the television or radio is also on. For perceptual motor abilities and praxis, should be enquired about difficulties in navigating previously familiar environments, use of familiar tools or machines, maintenance of previously acquired skills and dressing or feeding apraxia.2 For agnosia, should be enquired about recognition of familiar objects and insight into their condition and limitations. Enquiring into executive function involves assessing ability to perform complex tasks or solve problems, such as the ability to manage finances or medications. For social cognition, changes in behavior or personality may be subtle or more overt, depending on the severity of the dementia.

AIMS AND OBJECTIVE

- To measure the clinical profile, family history, risk factors, course and treatment outcome in mild to moderate degree of Alzheimer's disease patients.
- 2. To measure the clinical profile, family history, risk factors, course and treatment outcome in mild to moderate degree of Vascular Dementia patients.
- 3. To measure the clinical profile, family history, risk factors, course and treatment outcome in mild to moderate degree of Mixed Dementia patients.
- To compare the treatment effectiveness between the three groups of patients (Alzheimer's disease, Vascular dementia, Mixed dementia).

MATERIALS & METHODS STUDY AREAAND SETTING:-

A Tertiary care general hospital (R.G. Kar Medical College & Hospital, Kolkata, West Bengal). Patient attending Geriatric Clinic in the Department of Psychiatry of this hospital with diagnosis of Alzheimer's dementia, vascular dementia and mixed dementia and fulfill the inclusion and exclusion criteria of the study.

A complete evaluation for dementia begins with a thorough history

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STUDY DESIGN:- The proposed study is an Observational Descriptive and Comparative study.

STUDY PERIOD:- It started with Synopsis writing, in September, 2016 and finally, the thesis was submitted in September, 2018.

INCLUSION CRITERIA:-

Patient attending Geriatric Clinic who fulfills the following criteria:

- (a) Minimum age of 60 years.
- (b) Recent Magnetic Resonance Imaging (MRI) and Computed Tomography (CT) scan (within 12 months) consistent with diagnosis of probable Alzheimer's disease, vascular dementia or mixed dementia.
- (c) A knowledgeable and reliable care giver to accompany the patient for research visits and oversee the administration of investigational agents during the study.
- (d) Ability in terms of ambulatory or ambulatory aided e.g. walker or cane.
- (e) Stable medical condition (without heart failure, uncontrollable diabetes mellitus or hypertension)

EXCLUSION CRITERIA:-

- (a) Normal age related decline in cognitive function
- (b) Mild cognitive impairment (MCI)
- (c) Age associated cognitive impairment(AACI)
- (d) Clinically significant B12 and foliate deficiency.
- (e) Active pulmonary, gastrointestinal, hepatic and renal diseases.
- (f) Other psychiatric or CNS disorders.
- (g) Magnetic resonance imaging or computed tomography scan evidence of clinically significant CNS disorders other than probable Alzheimer's disease, vascular dementia and mixed dementia.
- (h) Dementia complicated by other organic diseases (Pick's disease, Huntington's chorea, Parkinson's disease, Front-temporal dementia, Normal pressure hydrocephalus etc.)

SAMPLE DESIGN:

Group A:(n=40) Patients of Alzheimer disease of mild to moderate degree will be treated with standardized treatment regime.

Group B: (n=40) Patients of Vascular dementia of mild to moderate degree will be treated with standardized treatment regime.

Group C: (n=40) Patients of Mixed dementia of mild to moderate degree will be treated with standardized treatment regime.

METHODS OF DATA COLLECTION: Patients first examined by specialist doctor in psychiatry OPD and Geriatric Clinic in the department of psychiatry. The specialist then referred the selected cases and then the cases were evaluated by using Mini Mental State Examination Scale, Addenbrooke's cognitive examination (ACE-R) Scale. Final diagnoses of the patient were done by a detailed assessment with a semi structured interview schedule and diagnoses were made according to DCR-10. Complete history, socio-demographic data, clinical features and results of psychological assessment were recorded in proforma used in the Geriatric clinic of psychiatric department and letter the data were transcribed to an excel data base. All patients were given necessary interventions, pharmacotherapy and were followed up for 3-6 months after which they were again reassess at 6-9 months interval, for measuring outcome.

RESULT AND DISCUSSION

We found that distribution of sample according to Age in years showing number and percentage of patients of each age group(60years to 70 years, 71 years to 80 years and more than 80 years) in each of the three dementia groups (Alzheimer, Vascular and Mixed) along with Fisher's exact test value and P-value of the distribution. Table 2 shows distribution of sample according to Sex of the patients showing number and percentage of patients of each sex group (male and female) in each of the three dementia groups (Alzheimer, Vascular and Mixed) along with Pearson chi- square test value (degree of freedom) and Pvalue of the distribution. Table 3 shows distribution of sample according to Residence of the patients showing number and percentage of patients of each residence group (rural and urban) in each of the three dementia groups (Alzheimer, Vascular and Mixed) along with Pierson of the patients showing number and percentage of patients of each residence group (rural and urban) in each of the three dementia groups (Alzheimer, Vascular and Mixed) along with Fisher's exact test value and Pvalue of the distribution.

This dissertation deals with major dementia syndromes i.e. Alzheimer dementia, Vascular Dementia and Mixed dementia. The present research tries to investigate whether these three major types of dementia were distinct from each other in their clinical presentation, onset, course, demographic profile, impairment, risk factors and treatment outcome. The study was conducted in the Geriatric clinic of R G Kar Medical College run by Department of Psychiatry. It was a short term, longitudinal, observational study. Our objectives were to examine the socio demographic status, clinical presentation, family history, risk factors, course and treatment outcome in mild to moderate degree of three major dementia syndromes i.e. Alzheimer, Vascular Dementia and Mixed dementia patients. Patients were initially examined by a specialist doctor in psychiatry OPD and Geriatric Clinic in the department of psychiatry. The specialist then referred the selected cases and such cases were evaluated by using Mini Mental State Examination (MMSE) Scale, Addenbrooke's cognitive examination (ACE-R) Scale. Final diagnoses of the patient were done by a detailed assessment with a semi structured interview schedule and diagnoses were made according to DCR-10. In the current study, 52 cases of Alzheimer dementia and 48 cases of Vascular Dementia and 45 cases of mixed dementia were initially included in the study at first visit. Out of these patients 8 in Alzheimer dementia group, 6 in vascular dementia group and 5 in mixed dementia group were lost during follow up in the course of study. Among the others 4 patients in Alzheimer group and 2 patients from vascular dementia group did not undergo the investigation procedures. These patients were excluded from study. Finally, each group were assigned with forty cases, i.e. all the three groups had forty cases each. All the cases included in the study were followed up for 12 months, one visit every month. Though the cases were followed up at one month interval, data collection was done at first visit (first contact with the researcher or guide), at 6 month and at 12 month. Sociodemographic variables, family history, severity of disease (by CDR scale), risk factors, MMSE score, ACE-R score and DAD score were assessed in first visit. Then MMSE score, ACE-R score, DAD score were assessed at 6 months and 12 months. In this study samples are selected from OPD of a tertiary hospital and community based sample has not been included. And follow up period is short (12 months). So, result of this study cannot be generalized and a long term study would be better informative on course of the disorder.

Discussion about socio-demographic profile:-

In our study total number of patients were 120 i.e. 40 patients from each group. In case of Vascular dementia group most patients are of 60 to 70 years of age. Among the patients aged more than 80 years, 66.66% of them having Alzheimer dementia. Most of the mixed dementia patients in our study belong to 70 to 80 years age group. Several studies have shown that Age increases the risk of dementia. Between 65 and 85 years of age, the prevalence doubles every 5.2 years, following an exponential model.³ However, controversy exists about whether age has the same influence on AD and VD. Several studies ⁴⁵ have shown that the increase in dementia with age occurs due to patients with AD. Our study supports this hypothesis as age was a risk factor for dementia and AD but not for VD.

Most of the patients are unemployed or laborer in occupation in all three groups. Most of the patients in all three groups know only one language. Among them Alzheimer patients are 37.8%. This distribution is significantly different in number of language known. The study was published on November 6 in Neurology and was done by researchers at Nizam's Institute of Medical Sciences in Hyderabad, India. 648 seniors with varying forms of dementia and literacy were evaluated and led researchers to conclude that those participants who spoke a second language were able to delay Alzheimer's disease, vascular dementia, and front temporal dementia by 4.5 years. Although why this phenomenon occurs is not yet known, speaking two languages requires a specific type of fattention. That part of the brain, if exercised, may be what delays certain types of dementia.

Discussion on family history of the study population

Most patients of all three groups are having high family history of medical illness. Mixed dementia patients (34 out of 40) having most family history of medical illness followed by vascular dementia patients (28 out of 40) followed by Alzheimer dementia patients. Most patients of Alzheimer group are having family history of Psychiatric illness compared to other two groups. This distribution is statistically significant in all three groups. Among the patients who have history of maternal inheritance, 61.1 are having Alzheimer dementia and 33.3%

Volume - 9 | Issue - 12 | December - 2020

are having Mixed dementia. Alzheimer (8 out of 40) and Mixed dementia (12 out of 40) patients having more family history of Genetic illness than vascular dementia (2 out of 40). Most of the Alzheimer dementia patients (30 out of 40) having history of dementia in first degree relatives followed by mixed dementia patients (16 out of 40) followed by vascular dementia patients(4 out of 40).

Discussion on presence of Risk factors in the study population

All the patients with Vascular and Mixed dementia are associated with history of prior stroke. No Alzheimer patient having history of prior stroke in our study population. Stroke increase the risk of cognitive deterioration and AD by three- to six-fold ⁶ and by four- to nine-fold for VD^7 , particularly if other vascular risk factors were present ⁶. Our patients with stroke had a higher risk of dementia, AD and VD. The association between AD and stroke could be explained by a systemic vascular process (generalised atherosclerosis) ⁸, the additive effect of stroke on AD, or oligaemia that would intensify the amyloid cascade $_{9.10}^{9}$

Discussion about outcome measures

MMSE score across all three group of dementia significantly

improved. Difference in MMSE score is significantly different between baseline and 6 months and baseline and 12 months, but no significant improvement in MMSE score was seen between 6 months and 12 months in case of Alzheimer dementia patients.

SUMMARY AND CONCLUSION

This study was done in a urban tertiary care centre in Kolkata and also it is a short term (12 months), small sample size based study. So the results of this study cannot be generalised. This type of study can only reflect the population of a urban tertiary care centre. In this study we tried to examine the socio demographic status, clinical presentation, family history, risk factors, course and treatment outcome in mild to moderate degree of three major dementia syndromes i.e. Alzheimer, Vascular Dementia and Mixed dementia patients. We have found that these three major dementia syndromes are different from each other in many aspects. The Alzheimer dementia is disease of aged people, mostly belong to Lower and Lower Middle class, illiterate or having primary level of education, gradual onset of disease, having family history of psychiatric illness, family history of Dementia in first degree relatives, family history of genetic illnesses, history of depression.

Table:- Distribution of study population according to Sex, Distribution of study population according to Stress factors, Distribution of
study population according to Family history of medical illness and Distribution of study population according to Family history of
psychiatric illness.

		GROUP			TOTAL	Test	P-value
		ALZHEIMER	VASCULAR	MIXED			
SEX	MALE N	20	20	24	64	Pearson chi-	0.585
	%	31.3	31.3	37.5	100	square Value-	
	FEMALE N	20	20	16	56	1.071(2)	
	%	35.7	35.7	28.6	100		
Stress factors	Mild N	10	20	16	46	Pearson chi	0.069
	%	21.7	43.5	34.8	100	square test	
	Moderate N	30	20	24	74	Value-5.358(2)	
	%	40.5	27.0	32.4	100		
Family history of medical illness	Present N	24	28	34	86	Pearson chi-	0.044
	%	27.9	32.6	39.5	100	square test	
	Absent N	16	12	6	34	Value-	
	%	47.1	35.3	17.6	100	6.238(2)	
Family history of psychiatric illness	Present N	22	8	14	44	Pearson chi-	0.005
	%	50.0	18.1	31.8	100	square test	
	Absent N	18	32	26	76	Value-	
	%	23.6	42.1	34.2	100	10.622(2)	

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