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To study the profile of clinically probable dementia with lewy bodies as per clinical consensus criteria and their clinical response to cholineesterase inhibitors

KEYWORDS

Dementia with lewy body, cholinesterase inhibitors,

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ABSTRACT *With the increase in life expectancy there is increase in the patients with dementia with lewy bodies (DLB). DLB is a distinct form of dementia with spontanous Parkinson's disease, fluctuation sensorium and visual hallucinations. It is often misdiagnosed or diagnosed late leading to increased morbidity and caregiver stress. With proper history and detailed examination DLB can be suspected and diagnosed early. In our study total 19 patients were diagnosed as probable DLB clinically, based on the consensus criteria and were administered cholineesterase inhibitors. There was a lag period of 3.1 years from the onset of symptoms and the diagnosis in our study. With cholineesterase inhibitors, there was improvement in cognition and reduction in caregiver stress as assessed by Hindi Mental Status Examination (HMSE) and Zarit Burden Interview (ZBI) at 12 weeks. There was total 5.37 points gain in the HMSE (15.81 to 21.18) and 9.91 points reduction in the caregiver stress (63.18 to 53.27) as assessed by Zarit Burden Interview (ZBI). Thus it is important to be aware of this disorder and diagnose it clinically early. Early diagnosis of DLB and prompt treatment with cholineesterase inhibitors can cause substantial improvement in cognition and reduction in caregiver stress.*

INTRODUCTION

With a rapidly ageing population there is steep increase in dementia patients. Dementia is a progressive illness and has a considerable caregiver burden. DLB is distinct type of dementia with prominent psychotic symptoms and can be clinically recognized with fluctuating sensorium, visual hallucinations and features of bilateral Parkinsonism. Due to psychotic symptoms and sleep disturbance the caregiver burden is very high in DLB. Although the disease is relentlessly progressive but the symptoms can be effectively managed with cholinesterase inhibitors. Most of these patients are not recognized and has a long lag phase in diagnosis from the time of symptom onset. This leads to disturbing and persistent symptoms, increased caregiver stress and morbidity. We are presenting the clinical profile of 19 such patients who were clinically diagnosed as probable DLB based on the consensus criteria and were treated with cholinesterase inhibitors

AIM: - To study the profile of clinically probable dementia with lewy bodies (DLB) as diagnosed by clinical consensus criteria and their clinical response to cholinesterase inhibitors

OBJECTIVES: - .

a. To study the profile of clinically probable dementia with lewy bodies.
b. To study the caregiver burden in these patients.
c. To study the response to cholinesterase inhibitors in these patients in the form of improvement in cognition as assessed by HMSE and reduction in caregiver burden as assessed by ZBI

STUDY DESIGN: -

It was observational cross sectional study with study in the patients who reported to the OPD with clinical features suggestive of DLB as per clinical consensus criteria between June 2013 to Nov 2016. Response to cholinesterase inhibitors was assessed after the clinical diagnosis.

MATERIALS AND METHODS:-

A detailed history was taken from the caregiver and the patients were admitted for convenience if required. All the patients underwent non contrast CT scan brain, HIV, VDRL, vitamin B 12 levels and TSH to rule out other causes of dementia. Patients were diagnosed based on the consensus criteria for clinical diagnosis of probable or possible diffuse lewy body dementia. HMSE, Clock drawing test (CDT) was done for all the patients at the baseline. Caregiver burden was also calculated using Zarit burden interview (ZBI). All the patients with probable DLB were exhibited cholinesterase inhibitors (Tab Donepezil 5 mg at bed time for one month followed by 10 mg at bed time). Patients were closely followed up and reevaluated after 12 weeks with repeat HMSE, CDT and ZBI were. Data was collated and analyzed.

Results :-

Total 19 patients were clinically diagnosed as a case of probable DLB. Five were females and 14 were males. Mean age was 76.05 years. Total 7 patients were between 70 years to 80 years and 5 patients were above 80 years of age. The lag period between onset of symptoms and diagnosis of probable DLB was 3.1 years. Mean HMSE of the patients was 15.81 at presentation. All the patients on presentation were on polypharmacy with mean average of 9 drugs and a maximum of 12 drugs in a patient. Five patients were on more than three anti parkinsonian drugs. There was a prominent visual-spatial deficit during HMSE and clock drawing test. One patient was a known case of hypothyroidism on eltroxin replacement with a normal TSH and one patient was found to have vitamin B12 deficiency with levels of 146 pg/dl. The patient with vitamin B12 deficiency was also given parentral vitamin B12 injection along with cholinesterase inhibitors. HMSE in this patient inproved from 13 to 23 which was maximum increase in HMSE. Total six patients had diabetes and seven had hypertension. Depression was noted in 6 patients and disturbed REM sleep was found in eight patients. Four patients gave history of fall in last one year. Baseline characteristics are shown in Table 1

Post cholinesterase inhibitor therapy the HMSE improved to 21.18 at 12 weeks. Three patients showed HMSE improvement of < 2. There was a significant reduction in the caregiver burden with cholinesterase inhibitors with reduction in ZBI form 63.18 to 53.27. Clock draw test also showed a significant improvement in score from 0.63 to 2.45 after treatment. Improvement post cholineesterase inhibitotrs at 12 weeks is shown in table 2

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Table 1. Base Line Characteristics

Patient Criteria		No of Patients	Percentage
Age			
	>90	2	10.52%
	80 – 89	3	15.78%
	70 – 79	7	36.84%
	60-69	7	36.84%
Avg Age	79.90 yrs		
M:F ratio	2.8:1 (14:5)		
Time lag between onset of symptoms and diagnosis	3.1 years		
Mean Baseline MMSE	15.81		
Disturbed REM Sleep		8/11	42.10%
Clock Draw Test Score	0.63		
Caregiver burden index (ZBI)	63.18		
Vitamin B12 Def		1/11	5.26%
Fall in last one year		4/11	21.05%

Table 2. Response to cholinesterase inhibitors at 12 weeks

	Baseline	At 12 weeks of starting cholinesterase inhibitors	Change
HMSE	15.81	21.18	+5.37
ZBI (caregiver stress)	63.18	53.27	- 9.91
Clock draw test	0.63	2.45	+1.82

DISCUSSION: - DLB is a distinct syndrome recognized since the mid- 1980s and most health care providers and patients are relatively unfamiliar with it(1,2). DLB is the second most common type of degenerative dementia following Alzheimer's disease (AD) as per literature. The characteristic features of DLB are spontaneous parkinsonism, recurrent visual hallucinations, fluctuating cognition, rapid eye movement sleep, behaviour disorder , severe sensitivity to antipsychotic medications and reduction in striatal dopamine transporters on single photon emission computed tomography (SPECT) or positron emission tomography (PET). The pattern of deficits seen in DLB is different to those in AD, with less marked memory impairment and more severe impairments of visuospatial, attentional and frontal-executive function (3). DLB can be clinically diagnosed base on the Based on international consensus and is suspected when cognitive impairment precedes parkinsonism or begins within a year of parkinsonism (4).

As per the consensus clinical criteria DLB has central features (dementia), core features (fluctuating cognition, recurrent visual hallucinations, features of spontaneous parkinsonism), suggestive features (REM sleep behaviour disorder, severe neuroleptic sensitivity, low dopamine transport uptake in basal ganlia as seen in PET) and supportive features (repeated falls and syncope, transient loss of consciousness, severe suttonomic dysfunction, hallucinations of other modalities, depression and relative preservation of medial temporal lobe structures in MRI). For diagnosis of probable or possible LBD, dementia must be present. Probable LBD is when at least one core features is present along with one other feature (core or suggestive). Possible LBD is when there is only one core feature or two and more suggestive features are present (5). Criteria for the clinical diagnosis of DLB have high specificity but low sensitivity (6).

In our cases the clinical diagnosis of probable LBD was made on presence of two or more core features in addition to presence of dementia. The diagnosis of LBD can be often missed and high degree of suspiscion and a proper systematic approach is required to suspect and clinically diagnose this disorder (7). Treatment of these patients with cholinesterase inhibitors has shown good response in some studies, especially in reduction of visuospaltial deficits, hallucinations and psychotic symptoms which was also seen in our study. In a case report it was seen that MMSE improved upto 7 after initiation of the treatment (8). In another case series it was noted that there was increase in MMSE of 5 points (9). In our study it was noted that MMSE improved by an average of around 5 points which is consistent with these studies. There was a significant reduction in the caretaker burden after starting cholineesterase inhibitors. To conclude their should be high index of suspicion required for diagnosis and early recognition of LBD. Patients can be clinically diagnosed as probable or possible LBD and a trial of choilineesterase inhibitors should be given to these patients.

Limitation of the study was that MRI could not be performed and thus hippocampal volume could not be assessed and the follow up was only for 12 weeks and the sustained response could not be assessed. It is important that primary physician is aware of this condition so that DLB can be clinically suspected and diagnosed early. However more such studies are required to be done to see the sustained effect of cholineesterase inhibitors in this condition.

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