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Prevalence of Nonmotor Symptoms in Parkinson's Disease

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Abstract; *Non motor symptoms(NMS) in Parkinson's Disease constitute a major clinical challenge, as they are common,yet often overshadowed by the dominance of motor symptoms and high unawareness of these among treating health care professionals. These NMS significantly affect the quality of life and may precipitate hospitalization. Although common the NMS of PD are not well recognised in clinical practice. The aim of our study was to find the prevalence of nonmotor features across the various stages of Idiopathic Parkinson's Disease and 2) to correlate it with the severity and duration of the disease.*

Keywords; *NMS,NMS Quest, NMSS,UPDRS,Hoehn and Yahr Staging*

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I. Introduction;

The NMS of PD were recognised by James Parkinson himself. Thus in his essay on the shaking Palsy in 1817,he referred to sleep disturbances, dysathria, constipation,dysphagia,sialoroea,urinary incontinence,constant sleepiness with slight delirium.Since then numerous studies have indicated that NMS are frequent accompaniments of PD affecting memory,bladder and bowel and sleep among others. While some such as depression,dementia,autonomic and sleep disturbances are well known,others such as dysphagia,dribbling of saliva,weight changes,sexual problems and diplopia are less well recognised.

The NMS include neuropsychiatric symptoms,sleep disorders, autonomic symptoms,gastrointestinal symptoms,sensory symptoms and miscellaneous symptoms like diplopia,fatigue and seborrhea.The nonmotor symptoms questionnaire (NMS Quest) and the nonmotor symprom scale(NMSS) were developed to assess the frequency and severity of NMS in PD patients across all stages. The NMS Quest was validated in march 2007 by the Movement Disorder Society. It covers 9 domains and includes 30 items, including sleep/fatigue, cardiovascular, mood/cognition, perceptual problems, attention/memory, gastrointestinal, urinary, sexual functions and miscellaneous.The NMS Quest does not provide an overall score or disability and is not a graded rating instrument.It is a screening tool designed to draw attention to the presence of NMS and to initiate further investigation.

Recent studies using the NMS Quest for PD patients have highlighted the significant occurrence of a range of different NMS in PD patients. Further studies validating the nonmotor symptom scale(NMSS) also indicated a strong relationship between the burden of NMS in PD and health related quality of life(QOL).The development of tools such as the NMS Quest and NMSS alongside the revamped UPDRS which includes a specific nonmotor domain will help define research and therapy to improve the recognition and managememt of NMS of PD.

II. Materials And Methods:

The study was conducted at the Department of Neurology,Coimbatore Medical College Hospital from Jauary 2015 to January 2018. Hundred Patients with Idiopathic Parkinson's Disease were studied.A detailed and complete neurological examination was done.Imaging, CT and MRI brain was done to exclude Parkinson Plus syndromes and vascular parkinsonism.The patients were in the age group of more than 50 years and the disease duration varied between less than 5 years,5 to 10 years and more than 10 years.The motor symptoms were assessed through the Unified Parkinson's Disease Rating Scale(UPDRS) and the disease staged according to the Hoehn and Yahr staging from stage 0 to stage 5.The nonmotor features were assessed through the Nonmotor Symptoms Questionnaire(NMS QUEST) which contains 30 items.This included cognitive dysfunction,sleep disorders,autonomic abnormalities,fatigue and depression.The prevalence of these Nonmotor symptoms across the various stages of the disease was studied and its correlation with the disease severity and duration assessed.
INCUSION CRITERIA: 1) Idiopathic Parkinson's Disease patients with the age of onset of the disease at 50 years and above

EXCLUSION CRITERIA: 1)Young onset Parkinson's Disease(YOPD) with the age of onset below 50 years. 2) Parkinson's Plus Syndromes like Progressive Supranuclear Palsy (PSP),Multi System Atropy (MSA), Corticobasal Degeneration(CBD). 3)Patients with Vascular Parkinsonism.

III. Results And Discussion;

This study included 100 patients with Idiopathic Parkinson's Disease.

AGE DISTRBUTION;

The number of patients in the
age group between 50 -60 years - 47
age group between 60-70 years - 41
age group > 70 years -12

SEX DISTRIBUTION;

There were 75 males and 25 females.

DURATION OF DISEASE;

The number of patients with the
duration of the disease from 0-5 years- 73
duration of the disease from 5-10 years - 21
duration of the disease > 10 years - 6

STAGE OF DISEASE;

Based on the Hoehn and Yahr Staging;
the number of patients in Stage 1 - 24
the number of patients in Stage 1.5 - 7
the number of patients in Stage 2 - 34
the number of patients in Stage 2.5 - 8
the number of patients in Stage 3 - 23
the number of patients in Stage 4 - 4

PREVALENCE OF NON-MOTOR SYMPTOMS IN THE STUDY COHORT:

The prevalence of NMS were;
Drooling-37%
Disturbances in taste amd smell-27%
Swallowing difficulty-24%
Constipation-50%
Urgency-47%
Nocturia-58%
Dizziness-34%
Pains-28%
Dreams-23%
Insomnia-35%
Sleepiness-20%
Memory-33%
Anxiety-22%
Depression-34%
Hallucination-15%
Sexual Dysfunction-14%
Falls-24%
Restless leg syndrome-14%
Sweating-40%
Weight loss-16%

The prevalence of NMS across the various stages of Idiopathic Parkinson's disease are: The number of NMS in Stages 1 and 1.5 were less than 5 (range of 2-3)
The number of NMS in Stages 2 and 2.5 were in the range of 5 and 7
The number of NMS in Stages 3 and 4 were between 9 and 12.

The patients in Hoehn and Yahr Stages 1 to 1.5 had duration of disease ranging between 6 months and 2 years.Those in Stages 2 and 2.5 had duration of disease between 2 and 5 years. Patients in Stages 3 and 4 had duration of disease ranging between 5 and 15 years.Our study has shown higher prevalence of NMS like Nocturia(58%),urgency(47%) and constipation(50%).The next prevalent NMS were insomnia(35%),depression(34%)memory(33%),dreams(23%),anxiety(22%), sleepiness(20%).

The most prevalent NMS were Autonomic Symptoms namely Nocturia urgency, constipation, sweating, dizziness and drooling. This was followed by Neuropsychiatric symptoms like memory

disturbances,depression,anxiety and hallucinations and sleep disturbances which include insomnia,sleepiness and dreams.Pains and weight loss were also prevalent.Diplopia,delusions,bowel and bladder incontinence were reported in a small percentage of patients.

The prevalence of NMS increased with the severity and duration of the disease.The number of NMS ranged between 2 to 3 in stages 1 and 1.5,increased to 5 to 7 in stages 2 and 2.5 and ranged between 9 to 12 in stages 3 and 4.The number of NMS were less when the duration of the disease was less than 2 years and increased with the duration of the disease.It was maximum reported when the duration of the disease was more than 5 years.

IV. Conclusion:

(1) Nonmotor symptoms are prevalent across all stages of Parkinson's Disease.
(2) The most prevalent ones were Autonomic which includes Constipation, Nocturia,Urgency and sweating.This was followed by insomnia,depression and memory disturbances.
(3) The number of NMS increased as the disease severity progressed.The number of NMS in stages 1 and 1.5 were the least.It increased through stages 2 and 2.5 and were highest reported in stages 3 and 4.
(4) The number of NMS also correlated with the duration of the disease.The number of NMS were least when the duration was less than 2 years,increasing as the duration increased and maximum reported when duration was more than 5 years.

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