

Original Research Article

A study on prevalence of various mood disorders in patients with multiple sclerosis in South Indian population Chennai, Tamil Nadu

Sivaji Murugaiyan^{1*}, Akshaya Rathin Sivaji², A. Marian Jude Vijay¹,
Indumathi Sundaramurthi³, Jawahar Marimuthu¹

¹Department of Neurology, Madras Medical College, Chennai, Tamil Nadu, India

²Department of Medicine, Thanjavur Medical College, Thanjavur, Tamil Nadu, India

³Department of Anatomy, Panimalar Medical College Hospital and Research Institute, Chennai, Tamil Nadu, India

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*Correspondence:

Dr. Sivaji Murugaiyan,

E-mail: sivajimuruga@gmail.com

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ABSTRACT

Background: The prevalence of depressive disorders are more common in demyelination diseases like multiple sclerosis. Patients with multiple sclerosis have higher rates of depressive episodes than the general population. It is found that 40-50% incidence reported in many number of previous research studies. The aim is to study the prevalence of various depressive disorders in multiple sclerosis (MS) patient population.

Methods: 176 MS patients were randomly selected from neurology outpatient department (OPD) of Tamil Nadu Government Multi Super Specialty Hospital and Rajiv Gandhi Government General Hospital, Chennai, Tamil Nadu, from September 2018 to December 2019. 128 patients were analyzed with the following methods of examinations such as the structured psychiatric clinical interview with diagnostic and statistical manual of mental disorders (DSM)-5 and international classification of diseases (ICD)-10 criteria, Hamilton depression rating scale (HAM-D) scale.

Results: Various subtypes of mood disorders were found as follows major depressive disorder (MDD)-4%, MDD with anxiety-6%, pervasive developmental disorders (PDD) mixed-4%, premenstrual dysphoric disorder (PMDD)-8%, MIDD-2% and depressive disorders due to general medical conditions (secondary depression)-22%. In this present study 46% of the MS population were diagnosed with various depressive illness.

Conclusions: Early identification and treatment of depressive disorders definitely favour the outcome of MS patients. The coping skills and good social support system play a vital role in the outcome of depressive disorders in MS population in addition to psychopharmacological management.

Keywords: Multiple sclerosis, Depressive disorder, HAM-D scales

INTRODUCTION

Prevalence of depressive disorders in multiple sclerosis (MS) patients were underestimated in the past. Psycho neuro immune response has been linked to genesis of depressive episodes. Feinstein et al stated that there is a link between multiple sclerosis and depression.¹ The neuropsychiatric manifestations of MS is known since 19th century according to Charcot, the description of major

symptoms were abnormal crying and laughing, euphoria, hallucinations and bipolar features.

The cross sectional study conducted by Cetin et al reported 59% of patients had depression with significant symptoms.² An another large, cross-sectional, community study conducted by Rickards with 1,374 patients showed prevalence of 41.8% with clinically significant depressive symptoms and 29.1% had moderate or severe depression.³

Patten et al conducted a Canadian community health survey (CCHS) with 115071 participants in the age group 18 and above, diagnosed 322 patients with MS in which he had found the prevalence of rate of depression was 25.7%.⁴ Sadovnick et al also reported by using a structured psychiatric interview the lifetime prevalence of depression was 50%.⁵ Major depressive disorder (MDD) affects 2-3:1 ratio of women to men. The gender variance is more around the time of puberty. Andrade reported 48.7% in 76 patients with MS. Alsaadi et al has reported 17.6% of major depressive disorder in 80 patients.^{6,7} 30.5% was observed by Boeschoten and 23.7% by Magyari et al in their systematic review studies.^{8,9} Saba Karimi et al reported 47.1% in 87 patients in a cross sectional study.¹⁰

Kessler et al, Kovacs et al and Simpson et al reported that the incidence in women gender are more vulnerable when compared to men at the time of first episode.¹¹⁻¹³ Mood changes occur in women because of hormonal fluctuations and periodical changes in the hypothalamus-pituitary-adrenal-gonadal axis. The female endocrine hormones play an important role in the manifestation of depressive disorder with the influence of variable compounding factor of biological, environmental and social stressors. The current researchers have a thought that it could be a shared pathological mechanisms that may lead to the increased rates of depressive disorders in patients with multiple sclerosis. Newer studies in biological psychiatry support this hypothesis. The proper clinical approach, psychiatric clinical examination with the assessment of symptoms by using clinical psychiatric scales reveal more or less half of the MS population were suffering from various depressive disorders. The studies of depression in MS patients by various authors are tabulated in Table 1.

Table 1: Studies of depression in MS by various authors.

Sl. no	Year of study	Authors	Prevalence of depression %
1.	1996	Sadovnick et al	50.0
2.	2003	Patten et al	25.7
3.	2005	Rickards et al	41.8
4.	2007	Cetin et al	59.0
5.	2011	Andrade	48.7
6.	2015	Alsaadi et al	17.6
7.	2017	Boeschoten et al	30.5
8	2019	Present study	46.0
9	2020	Magyari et al	23.7
10	2020	Karimi et al	47.1

METHODS

In this cross sectional study 176 demyelination disorder patients were randomly selected from neurology outpatient department (OPD) of Tamil Nadu Government Multi Super Speciality Hospital and Rajiv Gandhi Government General Hospital, Chennai, Tamil Nadu, from September 2018 to December 2019.

Inclusion criteria

From this population 128 established MS patients were selected inclusive of 78% (100) relapsing-remitting MS (RRMS), 12% (15) primary-progressive MS (PPMS) and 10% (13) secondary-progressive MS (SPMS) subtypes. These 128 patients who had manifested depressive symptoms on clinical psychiatric examination were included and subjected for the following methods of examinations such as the structured psychiatric clinical interview with diagnostic and statistical manual of mental disorders (DSM)-5, international classification of diseases (ICD)-10 criteria, and Hamilton depression rating scale (HAM-D). These patients were observed for a period of 8-12 weeks in 16 months duration. The other type of demyelination disorders such as tumefactive disorder, neuro myelitis optica (NMO) and NMO spectrum disorders and other psychiatric disorders patients were excluded from this study. The ethical and clinical approval were obtained and Informed consent were given by all patients. This study included 108 female and 20 male population. Age group varying between 18-50 years. Literacy rate ranges from 7.81% of illiterate and 92.18 % of literate (school to degree level education). 36.17% were students and 63.28 % were employed. The demographic profile are tabulated in Table 2.

Table 2: Demographic profile.

Characteristics	No. of patients	Percentage
Gender		
Male	20	15.62
Female	108	84.37
Literacy		
Literate	118	92.18
Illiterate	10	7.81
Employment		
Employed	81	63.28
Unemployed	47	36.17

4 points 17 items HAM-D scale consists of depressed mood, guilt feelings, suicide, insomnia – early, middle and late, work and activities, retardation – psychomotor, agitation, anxiety – psychological and somatic, somatic symptoms gastrointestinal (GI) and general, sexual dysfunction - menstrual disturbance, hypochondrias, weight loss by history and by scales, insight were administered and severity of depression were quantified.

RESULTS

The range of age group, number of patients and the number of various diagnostic entities were tabulated in Table 3. The following diagnostic categories were identified by using the structured psychiatric clinical interview and examinations with DSM-5 and ICD-10 criteria: major depressive disorder with mood congruent psychotic features (MDD) 4% (5); major depressive disorder with anxiety distress (MDD with anxiety) 6% (8); persistent

depressive disorder with mixed features (PDD-mixed) 4% (5); premenstrual dysphoric disorder (PMDD) 8% (10); substance/medication induced depressive disorder (MIDD) 2% (3); and depressive disorder due to another medical/neurological conditions (secondary depression) 22 (28) (Figure 1). In this study 38 (64.40%) diseased patients had scored 8-16 points - mild depressive illness, 13 (21.03%) patients had scored 17-23 points - moderate degree of depressive illness and 8 (13.55%) patients had scored more than 24 points - severe depressive illness based on 17 items HAM-D scale (Figure 2).

Table 3: Range of age groups and no. of patients and percentage.

S. no.	Range of age (years)	No. of patients	Percentage
1	18-20	10	12.8
2	21-25	36	28.12
3	26-30	34	26.56
4	31-35	24	18.75
5	36-40	09	7.03
6	41-45	09	7.03
7	46-50	06	4.68

Mean=29.44, median=27.00, SD=7.85

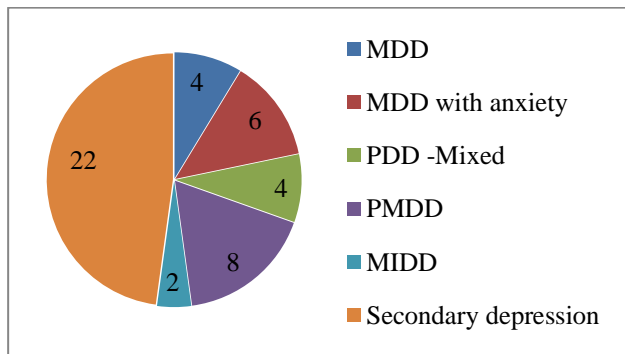


Figure 1: Categories of depressive disorder.

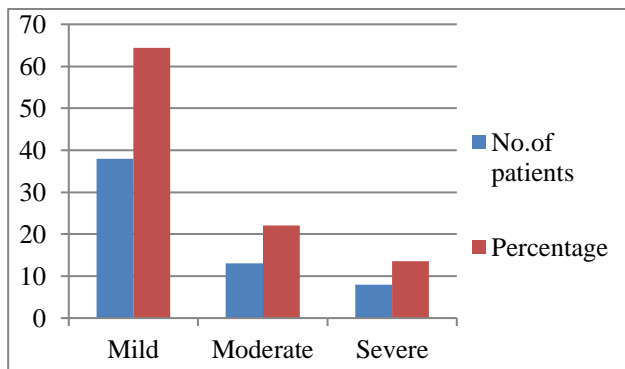


Figure 2: No. and degree of depressive patients.

DISCUSSION

The pathogenesis of mood disorder in MS is not clear so far. The interrelationship between etiology, symptoms,

cellular biochemical changes, response to treatment and outcome of mood disorders are not well understood in the past. In these disorders, there is a primary disturbance in mood and affective state, e.g. sad mood, prolonged depressive state and mood elevation were identified during the progression of demyelination. Most of the episodes were recurrent and the onset of individual episodes were often related directly to stressful life events, significant specific situations and secondary to general medical and neurological conditions. Based on DSM-5 the following criteria were used in this study population to make a diagnosis of depression.¹⁴ Those who have the following symptoms, 5 or more during two week period and one symptom either depressed mood or lack of interest or pleasure: depressed mood; decreased interest in all activities every day; weight loss or weight gain, increased or decreased appetite every day; slowing of thoughts and reduced physical activities; fatigue or reduced energy level every day; worthless feeling, excessive guilt every day; decreased thinking and concentration every day; and repeated thought of suicide and death.

Gilberthorpe et al stated that the incidence of depression was two to three times common in females than males Schiffer noted that the incidence of depression is high in MS, most of the time it seems to be consistent.^{15,16} Usually the depressive episode lasts for 4-6 months and normally resolved without psychological and pharmacological intervention within 6 months. But most of the patients were necessitated psychopharmacological treatment in order to maintain a reasonable quality of life and prevent lethal suicidal attempt. Minden et al studied 50 patients with MS, based on research diagnostic criteria (RDC) that revealed 54% of his study population had depressive illness.¹⁷ Joffe et al reported 42% had depressive disorder in 100 patients based on RDC criteria.¹⁸ Chwastiak et al surveyed 1374 individuals and reported that 42% members had clinically significant depressive illness by using depression scale (CES-D).¹⁹ Most of the studies showed that the prevalence rate of depression ranges from 40-50%. Generally patients who have poor coping skills and inadequate social support system in the MS population were underreported. In clinical research the usage of relevant validated clinical tools and appropriate psychiatric rating scales will reveal the underlying psychopathology which are normally missed in MS clinics. In this study the prevalence of depressive disorders of various diagnostic entity is 46%.

Psychosocial factors play major role

Research addresses the need of psychosocial factors in the development and manifestation of depressive disorders in MS population. The following factors such as stress, fearfulness, anxiety and depressed mood prevail in MS patients most of the life time. The coping skills and social support system are an important factors in the management of mood disorders. Pakenham examined the stress and coping variable in MS patients and found that the family and social support system had played a vital role on setting

the pace of pendulum of mood swings normally.²⁰ In this present study 92% patients were improved with good adequate social, family support and coping skills with periodical psychotherapeutic sessions along with psychopharmacological management.

Interferon and depression in MS

90% of the patient were treated with the drug interferon Ia beta injection in a periodical interval. In the early 1990s there was a consensus on the potential of the drug to cause or exacerbate depression and suicide intent. In this study there was no direct evidence to cause depressive episodes but there were chances to augment the process of manifestation and increase the severity of depressive mood disorders. Clinically this is very earlier to conclude that disease modifying drugs were associated with depression. The controlled high risk avonex multiple sclerosis (CHAMPS) study done by Siegert et al stated that there is an increased rate of depression (20%) in patients treated with interferon than a placebo (13%). In this study there was no evidence of drugs to contribute the genesis and onset of psychopathology.²¹

Management of depression in MS

In this study the psychopharmacological treatment of depression in MS patients definitely had improved the symptoms of depression and led to nearing or complete euthymic mood state and postponed the immediate relapse of MS. Cognitive and insight oriented psychotherapy had prevented suicide attempts and had improved the quality of life. Different regimen and combination of psychopharmacological treatments were followed in this study. All patients were treated with psychopharmacological, psychotherapy and combination of both. There was a significant improvement in the HAM-D Rating scales in MS patients with appropriate antidepressant and low dose of atypical antipsychotic drug treatment. Mohr and Goodkin five meta analytic studies had concluded that patients were treated with antidepressants and psychotherapy in which those who had a good coping skills were showed a remarkable improvement than with insight oriented psychotherapy.²² Perez et al recommended lower dose of selective serotonin reuptake inhibitors (SSRIs) as a first-line of treatment.²³ In this study psychopharmacological drugs like SSRIs sertraline 25-50 mgs, escitalopram 10-20 mgs BID and quetiapine 25-50 mgs HS doses were used for 6-8 weeks' time. 92% of depressive patients were improved with these drug combinations and a course of periodic sessions of psychotherapy.

Limitations

This was a cross sectional study, observed for 16 months duration and the sample size was small. Hence prospective study in future will enlighten more details and precision on the incidence and course of mood disorders in MS population

CONCLUSION

The etiology of depressive disorders in MS population are multifactorial. The biological, psychological, social and environmental factors are associated with demyelinating lesions. Proper diagnosis and assessments are very important prior to initiation of drug therapy. Various Depressive disorder diagnostic entities were identified in MS patients. Early identification of multifactorial causes associated with MS have to be assessed with psychiatric rating scales and standard structured psychiatric clinical examination. Most patients with MS and various form of depressive disorders or suicidal thoughts are under-recognized and untreated. The treatment of depressive disorders at the earliest definitely favour the outcome of MS patients and prevents the lethal complications like suicidal attempt. This can be achieved by strengthening the ego system, increase the coping skills and social family support system. In general the clinical neurologist should screen for mood disorders like depression and identify the mood symptoms and liaison psychiatry opinion has to be made during the management of MS patients. These measures will definitely make a good outcome of multiple sclerosis.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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