

A Prospective Study on Clinical Presentation of Mild Cognitive Impairment and its Outcome in Patients Presenting in Psychiatry Department of a Tertiary Care Centre

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Abstract

Background: Mild cognitive impairment (MCI) is a heterogeneous condition with cognitive characteristics between normal aging and dementia. The present prospective study was conducted to assess clinical presentation of mild cognitive impairment and its outcome in patients presented in psychiatry department of a tertiary care centre. **Materials & Methods:** The patients for this study were recruited from psychiatry department at S.K. Medical College, Sikar, Rajasthan. The patients were seen by a behavioral neurologist who obtained a medical history from the patient and neurologic examination was also done. The first set of tests was used for diagnostic purposes and included the, Wechsler Memory Scale-Revised, Auditory Verbal Learning Test. The second set of tests was used for research purposes and included the Mini-Mental State Examination (MMSE), Dementia Rating Scale (DRS), Boston Naming Test. Diagnoses were made for dementia and AD. The outcome of patients with an MCI using these criteria was noted. **Results:** We have enrolled 80 subjects with the diagnosis of MCI. A total of 200 patients were included in the study as controls and 60 patients were suffering from Alzheimer's disease. The subjects with MCI were significantly impaired on all memory measures relative to control subjects and appeared similar to the patients with AD. The outcome of the subjects with MCI shows that at initial examination 100% patients were with MCI. At 12 months 80% patients were with MCI, at 24 months 70% patients were with MCI, at 36 months 60% patients were with MCI and at 48 months 55% patients were with MCI. **Conclusion:** The present study concluded that outcome of the subjects with MCI shows that at initial examination 100% patients were with MCI and at 48 months 55% patients were with MCI.

Keywords: Mild Cognitive Impairment, Alzheimer's Disease, Dementia.

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Introduction

Mild cognitive impairment (MCI) is a heterogeneous condition with cognitive characteristics between normal aging and dementia. It is currently defined as a syndrome with impairment of memory or another cognitive deficit that does not interfere substantially with personal affairs nor result in inability to live independently[1]. The concept of MCI was first described by Peterson in 1997 who described it along a continuum between normal ageing and dementia[2]. The American Academy of Neurology has defined MCI as having memory complaints preferably corroborated by an informant, objective memory impairment, normal general cognitive functioning, intact activities of daily living and not demented.³ Its most common etiology is Alzheimer's disease (AD), other etiologies including dementia with Lewy bodies, vascular or frontotemporal dementia[4]. Not all patients with MCI progress to dementia and some recover to normal cognition[5]. The diagnostic criteria have been now extended to include individuals whose memory complaint is expressed by an informant, individuals with intact memory but significant impairment of a non-memory cognitive function and individuals with some impairment in complex instrumental activities of daily living[6]. The present prospective study was conducted to

assess clinical presentation of mild cognitive impairment and its outcome in patients presented in psychiatry department of a tertiary care centre.

Materials & Methods

The patients for this study were recruited from psychiatry department at S.K. Medical College, Sikar, Rajasthan. Before the commencement of the study ethical approval was taken from the Ethical Committee of the institute and written informed consent was taken from the patient or guardian. The patients were seen by a behavioral neurologist who obtained a medical history from the patient and neurologic examination was also done. Study personnel obtained other data including the additional family history information. Laboratory studies were performed, including a chemistry group, complete blood cell count, sedimentation rate, vitamin B₁₂ and folic acid levels, sensitive thyroid-stimulating hormone level, and syphilis serologic testing. All patients received a head imaging study (computed tomography or magnetic resonance imaging). Additional studies including a cerebrospinal fluid analysis, electroencephalogram, and a single-photon emission computed tomographic scan were performed as the clinical situation indicated. Two sessions of neuropsychological testing were completed on all subjects. The first set of tests was used for diagnostic purposes and included the, Wechsler Memory Scale-Revised, Auditory Verbal Learning Test [7]. The second set of tests was used for research purposes and included the Mini-Mental State Examination (MMSE), [8] Dementia Rating Scale (DRS), [9] Boston Naming Test [10]. Diagnoses were made for dementia and AD. The outcome of patients with an MCI using these criteria was noted. Control subjects were sought from the community population of individuals receiving general medical

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examinations at the tertiary care centre. They underwent a similar evaluation as the patients described earlier including the neurologic examination and neuropsychological testing battery. They qualified as controls if, in the opinion of their clinician, they were functioning normally and did not have a cognitive impairment. In addition, they could not have any active neurologic or psychiatric illnesses and could not be taking psychoactive medications. They could have comorbid illnesses such as hypertension and coronary artery disease, and they could be taking medications for these disorders. However, in the opinion of their physicians, these illnesses or their treatments did not interfere with the patients' cognitive function. These patients were also reviewed at the consensus conference and CDR scale and

Global Deterioration Scale ratings were completed. Patients and control subjects were reevaluated every 12 to 18 months.

Results

We have enrolled 80 subjects with the diagnosis of MCI. A total of 200 patients were included in the study as controls and 60 patients were suffering from Alzheimer's disease. The subjects with MCI were significantly impaired on all memory measures relative to control subjects and appeared similar to the patients with AD. The outcome of the subjects with MCI shows that at initial examination 100% patients were with MCI. At 12 months 80% patients were with MCI, at 24 months 70% patients were with MCI, at 36 months 60% patients were with MCI and at 48 months 55% patients were with MCI.

Table 1: Comparison of 4 groups on various Cognitive scales

	Controls	MCI	AD
N	200	80	60
MMSE	27.2±0.2	25.9±0.2	23.7±0.3
DRS	133.9±0.3	125.3±0.2	111.8±1.7
BNT	49.2±0.2	44.0±1.4	35.8±1.6
WMS-R			
LMI	20.2±0.1	13.5±0.5	8.9±0.7
LMII	14.2±0.4	4.5±0.4	2.9±0.6
VRI	24.6±0.5	20.3±0.6	14.6±0.7
VRII	17.9±0.7	7.5±0.7	4.3±0.6
AVLT			
LNG	34.3±0.3	24.0±0.4	22.0±1.3
%RET	61.2±1.3	23.2±0.4	8.9±1.9

Table 2: Annual rates of conversion from mild cognitive impairment (MCI) to dementia over 48 months

Time period	MCI%
Initial examination	100%
12 months	80%
24 months	70%
36 months	60%
48 months	55%

Discussion

The incidence and prevalence rates of MCI are heterogeneous across studies due to variation in definitions and diagnostic criteria. The COSMIC collaboration[11] found an MCI prevalence of 6% in those over 60 years of age across 11 studies, and the updated American Academy of Neurology guideline estimated 6.7% prevalence in 65–69 year olds and 25% for ages 80–84[12]. We have enrolled 80 subjects with the diagnosis of MCI. A total of 200 patients were included in the study as controls and 60 patients were suffering from Alzheimer's disease. The subjects with MCI were significantly impaired on all memory measures relative to control subjects and appeared similar to the patients with AD. The outcome of the subjects with MCI shows that at initial examination 100% patients were with MCI. At 12 months 80% patients were with MCI, at 24 months 70% patients were with MCI, at 36 months 60% patients were with MCI and at 48 months 55% patients were with MCI. A tertiary center study by Li et al[13] administered the Hamilton Depression Rating Scale [35] to 146 cognitively normal elderly and 19 MCI patients who were seen in follow-up 2–12 months after initial assessment. Twenty percent of the normal controls declined to MCI or dementia. Nine MCI subjects were diagnosed with AD in follow-up. The prevalence of depression at baseline was 16% in the controls and 29% in the MCI group. At followup 14% of the controls and 28% of the MCI subjects endorsed depressive symptoms. The incidence of depression in the MCI group was 11.7/100 person-years. The study also reported a very high resistance of depressive symptoms to antidepressant treatment in the MCI group (60%)

Van der Linde *et al.*, found that depression was the most common in those with the lowest MMSE scores (17.6%) and more common in MCI (14.5%) than in those with no cognitive impairment (6%). The commonest neuropsychiatric problems in dementia group were delusions and nighttime behavior followed by agitation. Anxiety was the commonest complaint in the normal group followed by agitation. The risk of anxiety was associated with a higher MMSE score similar to the study by Van der Linde *et al*[15]

Conclusion

The present study concluded that outcome of the subjects with MCI shows that at initial examination 100% patients were with MCI and at 48 months 55% patients were with MCI.

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