Short Communication

Mini Mental State Examination (MMSE) in First Episode of Psychosis

Faezeh Tatari, MD[1]
Vahid Farnia, MD[1]
Fariborz Kazemi

1 Behavioral Sciences Research Center, Kermanshah University of Medical Sciences, Kermanshah, Iran

Corresponding author:
Vahid Farnia, MD,
Behavioral Sciences Research Center, Kermanshah University of Medical Sciences, Kermanshah, Iran.
Tel: +98-831-826700
Fax: +98- 831-8264163,
Email: vahidfarnia@yahoo.com

Objective: Neurocognitive deficits are now recognized as part of the fundamental disturbances and are a major determinant of functional outcome in psychosis. A cross-sectional association between cognitive deficits and poor social and occupational outcomes has been demonstrated; and treatment of cognitive impairment at the time of the first episode may have the potential to change functional outcomes of the illness. We conducted this study to evaluate cognitive function in first episode of psychosis by the Mini Mental State Examination (MMSE.(
Method: Sixty two patients with first episode of psychosis were selected and underwent psychiatric interview and took MMSE test. Statistical analysis was done using SPSS-18 software.
Results: According to MMSE scale, 47 patients (75.8%) showed definite cognitive impairment, 8(12.9%) showed possible impairment ,and 7(11.3%) showed no cognitive impairment. According to MMSE subscale, registration (69.4%) and recall (77.3%) were the most impaired cognitive areas .
Conclusions: The results of the current study indicate significant cognitive impairment in patients with first episode of psychosis. We recommend future studies with larger sample size and control group for further evaluation of cognitive function as early treatment of cognitive impairments may have important implications in the course of illness.

Keywords: *Cognition, Neurobehavioral manifestation, Psychotic disorders*

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Neurocognitive deficits are now recognized as part of the fundamental disturbances in schizophrenia (1, 2). Patients with schizophrenia have widespread, multifaceted impairments in many domains of cognitive functioning, including executive function, concentration, perceptual/motor processing, vigilance, verbal learning and memory, verbal and spatial working memory, and semantic memory (3-6).
Cognitive deficits may represent a core pathophysiological feature of the illness because at the time of the first psychotic episode these impairments are very similar in profile and severity to those seen in patients with more chronic illness (6). These deficits are apparently present even before the onset of the first psychotic features of the illness (7) and appear to worsen slightly as illness onset approaches (8). A cross-sectional association between cognitive deficits and poor social and occupational outcomes has been demonstrated (9). In patients with an established illness, the correlation between cognitive and functional impairments is consistent across wide variations in the severity of lifetime functional impairment. (10)

The Mini-Mental State Examination (MMSE), first introduced by Folstein and colleagues in 1975, has become a standard tool for cognitive assessment in the clinical setting. The MMSE facilitates the detection of mental status changes, particularly in the elderly, and thereby enhances patient care (11). As a research tool, it has been used to screen cognitive disorders in epidemiologic studies of community dwelling and institutionalized populations. (12-16). The Farsi version of MMSE (F-MMSE) was validated by Seyedian and his colleagues (17). The aim of this article is to evaluate the cognitive function in patients with first episode of psychosis by use of the MMSE.

Materials and Method

This Our study was aimed to assess the cognitive function in patients with first episode of psychosis by the use of MMSE. Seventy nine patients meeting screening criteria for a first psychotic episode completed a diagnostic Structured Clinical Interview for DSM-IV-TR with the help of a clinical researcher from January 2009 to March 2010 in psychiatric clinics of Kermanshah University of medical sciences.

Exclusion criteria of the study were psychotic disorder due to general medical condition, mental retardation, organic cognitive disorders and taking drugs that could affect cognitive status. Of the subjects, 17 were excluded from the study based on the exclusion criteria. Written informed consent was obtained from all 62 patients. To examine symptoms associated with psychiatric disorders as well as demographic factors, subjects underwent a comprehensive interview.

The F-MMSE was included as a part of the Diagnostic Interview Schedule in order to assess cognitive functioning. MMSE is a tool that can be used to systematically and thoroughly assess mental status. It is an 11-item measure that tests five areas of cognitive function: orientation, registration, attention and calculation, recall, and language. The maximum score is 30. A score below 25 suggests possible impairment. It seems that F-MMSE has acceptable validity. A cut-off point of 22 can reliably differentiate patients with definite cognitive impairment from healthy subjects (17), and a cut-off point of below 22 indicates definite cognitive impairment. The MMSE takes only 5-10 minutes to administer and is therefore practical to use repeatedly and routinely. Data analysis was performed by SPSS -18 software using chi-square test.

Results

Sixty nine patients with first episode of psychosis who met the inclusion criteria were selected by convenient sampling. Our sample consisted of 36(58%) male and 26(42%) female patients with mean age of 43.8 and 35.5 respectively. Of the subjects, 34(54.8%) were married and 28(45.2%) were single. According to MMSE scale, 47(75.8%) patients showed definite cognitive impairment (score below 22), 8(12.9%) showed possible impairment (score below 25 but more than 22) and 7(11.3%) showed no cognitive impairment (score above 25).

Cognitive impairment was more in male patients (42% VS 22.5%) (P value < 0.05). Cognitive impairment was 16.1% in the age group below 25 years, 25.8% in 25-35 years and 35.6% in those older than 35 years (P value < 0.05). Patients with academic education showed lower cognitive impairment than those with less education (12.8% VS 16.4%) (P value > 0.05).

Regarding the diagnosis of brief psychotic disorder (67.3%), substance induced psychotic disorder (54.7%) and schizophrenia (45.6%) showed the most cognitive impairment respectively. Areas of cognitive function in our sample are summarized in Table 1.

Discussion

The results of the current study indicate significant cognitive impairment in patients with first episode of psychosis. Cognitive impairment is now seen as an inherent feature of schizophrenia (18) and has been documented in many different domains, including attention (19), executive functioning (20), episodic memory (21), verbal skills (22), and processing speed (23). Based on the MMSE score, our study showed higher cognitive impairment in males than females and an increase in older patients; and the differences were statistically significant. We found that cognitive function declines with old age. Cognitive impairment was higher in those with less education but the difference was not statistically significant. Although some prior reports of prevalence rates have shown the association of age and educational level with total MMSE score, the information has been difficult to apply to the clinical area, where there often is a need to evaluate a score obtained for individual patients of different age and education levels. However, there have been no published MMSE scores by age and education based on large representative community samples, which would allow clinicians to place patients' scores in the context of their communities (24). Based on the diagnostic interview, patients with Brief psychotic disorder showed the most cognitive impairment. Perplexity is one of the signs in brief psychotic disorders which may affect cognitive function. Patients with substance induced psychotic also showed higher cognitive impairment which may be due to substance side effects.

Based on the MMSE sub scale analysis, our sample showed more impairment in registration and recall. Pervious study showed impairment in attention of patients with schizophrenia (25) that correlates with our finding. Attention can also be divided into the following distinct components: alertness, the capacity to respond promptly to a stimulation enforceable in nature; sustained attention, the capacity to focus attention over a long period of time for stimuli appearing in an infrequent and enforceable way; selective attention, the ability to focus attention consciously on relevant information while ignoring simultaneously presented irrelevant information that could interfere with the work in progress; and divided attention, described as the capacity to divide intentional resources between several simultaneous messages.

Table 1- Cognitive impairment according to MMSE sub scales in patients with first episode of psychosis

Sub scale	Intact		mild impairment		severe impairment		Total percent
	number	percent	number	percent	number	percent	
Orientation	22	35.5	16	25.8	24	38.7	100
Registration	19	30.6	18	29.0	25	40.4	100
Attention and Calculation	29	46.7	19	30.6	14	22.7	100
Recall	14	22.7	26	41.8	22	35.5	100
Language	24	38.7	17	27.4	21	33.9	100

The main limitations of this study are small sample size, lack of accurate assessment of severity of psychosis and lack of other complementary tools for cognitive assessment.
We recommend future studies with larger sample size and control group for further evaluation of cognitive function as disability may develop early in the course of illness without treatment and as early treatment of cognitive impairments may have important implications in the course of the illness.

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