Commentary

Cognitive functioning in schizophrenia: its relevance to rehabilitation

The study by Trivedi et al in this issue attempts to compare the cognitive functioning in a group of persons with schizophrenia who are currently clinically stable and on maintenance medication and in euthymic bipolar-I patients. Cognitive assessments were done using Wisconsin’s Card Sorting Test (WCST), Spatial Working Memory Test (SWMT) and Continuous Performance Test (CPT), all of which were computer based tests. It was found that the performance on the tests was much worse in those with schizophrenia, when compared to persons with bipolar disorder. While there is nothing very surprising about these results, what merits attention is that cognitive functions have been measured in clinically stable states.

In clinical psychiatry, it is difficult to be absolutely definitive about a total cure or remission, especially in psychotic conditions like schizophrenia. Even when clinical stability is achieved, some amount of residual symptoms, mostly negative symptoms might persist leading to cognitive dysfunction. Hence it becomes important to measure this dysfunction in clinically stable patients to help them deal with these deficits. The findings of this study reiterate the need to be sensitive to such deficits even while dealing with symptomatically remitted patients, this information being important for planning rehabilitation programmes.

It is now contextual to look at the role of cognitive functions, assessments and retraining as they apply to chronic mental disorders such as schizophrenia.

What is cognition: Cognition is what enables humans to function in everyday life in the spheres of personal, social, and occupational activities. The ability to attend to things in a selective and focused way, to concentrate over a period of time, to learn new information and skills, to plan, to determine strategies for actions and to execute them, to comprehend language and to use verbal skills for communication and self-expression, and to retain information and manipulate it to solve complex problems are examples of mental processes that are referred to as cognitive function. While almost all of these are taken for granted in most persons, they get impaired in a group of disorders ranging from schizophrenia and dementia to head injuries and epilepsy. This impairment inevitably has an impact on functional outcome of the illness.

Cognition in a broad sense means information processing. It denotes a relatively high level of processing of specific information including thinking, memory, perception, motivation, skilled movements and language. The activities include: Attention and concentration, Orientation to time, place and person; Ability to learn new skills, Problem solving, Abstract thinking; Making judgments, Ability to retain and recall events; Mathematical ability and other forms of symbol manipulation; Control over primitive reactions and behaviour, Language use and comprehension, and Perception and praxis.

Cognitive deficits in schizophrenia: As early as 1896, the eminent German psychiatrist Emil Kraepelin used the term dementia praecox for schizophrenia to imply that the disorder often strikes in adolescence or early adulthood and runs a chronic, lifelong, disabling course. He was the first clinician to establish a link between these cognitive impairments and poor functional outcome in patients with schizophrenia, such as deficits in social functioning, independent living, and self-care abilities. Since then, various aspects of cognitive functioning have been studied in great detail and linked to clinical, social, biological factors including changes in the brain.

Cognitive deficits (CD) in schizophrenia can emerge at the onset of disorder and remain relatively stable throughout the course. The specific disturbances can be in:
(i) General intelligence - In some, significant impairment in tasks of global intellectual functioning have been noted as compared to normal persons. Some of them however, retain their intellectual skills throughout the course of the disorder.2,3

(ii) Attention and information processing - Deficits have been seen in maintenance of attention, immediate serial recall, poor selectivity, inability to shift attention. These correlate strongly with negative symptoms.4

(iii) Memory and learning - Memory dysfunction has been well documented, especially in episodic and semantic systems. Deficits in working memory seem to be particularly important and impair a person’s capacity to function.5,6

(iv) Executive function - This includes planning, problem solving, shifting sets, alternating between tasks and are essential for complex goal directed behaviour.

Language: Incoherence, perseveration, insufficient speech, irrelevant talk and use of neologisms are frequently seen in schizophrenia. All these deficits have been associated with clinical symptoms, especially with negative symptoms, and disturbed social functioning. The links between neurocognition and symptoms in schizophrenia is complex.7 Many cognitive deficits begin long before appearance of psychotic symptoms and linger during the phases of clinical remission, making it relevant for rehabilitation.

Role in rehabilitation: Studying cognition, identifying cognitive deficits and modifying them are a major component of psychosocial rehabilitation of persons with schizophrenia. The two methods commonly employed are cognitive retraining and cognitive behavioural therapy.

Cognitive retraining involves identifying the area of dysfunction and exposing the individual to a series of tasks which help regain his skills and function. The first approach is based in the laboratory with the aim of improving performance on an individual test. An example is the retraining was given on the Wisconsin Card Sorting Test, incorporating strategic training, positive and monetary feedback. The second approach comprises studies done in clinical settings, which in addition to improving performance on a variety of tests, have also, examined the generalization of the improved cognition to daily activities. This approach has number of different types of cognitive retraining programs, such as paper pencil task, computer based task, also group activities. The main aim is to provide the “minimum level of support for our patients which achieve the maximum level of independence”.

The main aim of cognitive behavioural therapy (CBT) is to reduce the distress caused by psychotic symptoms such as hallucinations and to reduce emotional disturbances. This can often result in the better understanding of the person of his psychosis and facilitates his greater participation in the therapeutic process itself. The strategies used in CBT are as follows: (i) establishment and maintenance of a therapeutic relationship; (ii) coping strategies - a range of activities have been developed to reduce distress caused by psychotic symptoms. These include measures to sustain attention, to reduce levels of anxiety, activity scheduling including keeping record of a particular symptoms such as a hallucination; and (iii) helping the person to understand the illness better, and deal better with negative self evaluations like low self esteem.

CBT is fast emerging to be an effective tool to reduce symptoms resistant to medication and is an integral part of rehabilitation settings.8

Cognition is being increasingly recognized as an important brain function which gets affected in certain disorders like schizophrenia and dementia. Assessment of cognitive dysfunction is a part of the clinician’s armamentarium and modifying this is becoming a critical aspect of any rehabilitation programme. This does not involve complex methodology, but simple measures can be equally effective. More research is warranted in the area of neurocognition in schizophrenia.

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