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Cognitive Remediation to Take Care of Schizophrenic Patients Today

Laurence Lacoste*

Neuropsychologist, 83 Avenue d'Italie, 75013 Paris, France

***Corresponding author:** Laurence Lacoste, Neuropsychologist, 83 avenue d'Italie, 75013 Paris, France, Tel/Fax: 33 (0)1 71 72 74 75; E-mail: lacoste.laurence@free.fr

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Abstract

This article is about specificity of schizophrenia care with the evolution of these last years and the help of Cognitive Remediation to improve the quality of life and the insertion of these patients. First, we describe the criteria of international classifications (DSM V and ICD 10) and the fact that they are not completely the same. To illustrate this limit, we define the frequent case of brief psychosis, it can be an isolate episode in a life or not. Sometimes, the evolution is the chronic illness. Then, the cognitive approach is a new definition of psychotic disorders. The question is how to help these patients to adapt their cognition with the society and how to help them to compensate their deficits. Here, are described more precisely IPT, CRT, RECOS, REHACOM® and RC2S programs with the necessity of a personal accompaniment. Explain them the trouble is essential and depend of the singularity of each subject in his own culture and family history. Randomized studies show that Cognitive Remediation, new medications and psychotherapies are supplementary to cure schizophrenia and psychosis as an illness like any other.

Keywords: Schizophrenia; Brief psychosis; Cognitive remediation; Psychotherapies

Introduction

In psychiatric hospital, most of time, chronic patients have an illness with psychosis diagnostic. It's common that these patients don't have the criteria of psychosis or schizophrenia as they are defined in International Classifications. So, how should we take care of patients with schizophrenia and related disorders today for their rehabilitation in real life? Cognitive disorders in Schizophrenia and psychosis are now described precisely. Executive dysfunctions in association with memory troubles and problems in social cognition are the depart point of a possible rehabilitation. It's the main question we want to treat here.

The International Classifications

DSM-V [1] and ICD-10 [2] show the convergence of international nomenclature of psychotic disorders. They emphasis on atheorism with the definition of operational diagnostic criteria, but some differences are present and they don't acknowledge subjectivity of each patient. They are interesting to understand these differences for the help we can give to patients.

In DSM-V, six criteria define schizophrenia: A/ Presence of at least two symptoms with a positive one like hallucination, delirium, disorganized speech or/and behavior. Negative symptoms like affective disorders and lost of interest can be the second one. B/ Deterioration in work, social relationships, personal care. C/ These two criteria must be present at least six month with one month of the criterion A. D/ With the exception of bipolar or schizoaffective disorders. E/ With the exception of organic or toxic factors. F/ For patients on the autistic spectrum, hallucinations or delirium must be present.

In ICD-10, the different forms of Schizophrenia diseases and Psychotic disorders are more completely depicted with their specificities. The big difference is the notion of Brief Psychosis, closely related to French nosology and the notion of post-schizophrenia depression. Brief Psychosis traced back to the concept of « Bouffées délirantes aiguës » described by several French authors [3,4] are acknowledged internationally. Empirical criteria have been proposed in France to separate Brief Psychosis from other psychotic disorders. The long term evolution isn't always a Schizophrenia. For a good prognostic, symptoms must be present only for a time inferior at four weeks, confusion must be present during the episode and patient must have a good premorbid functioning and lack of blunted or flat affect. Etiology of Brief Psychosis is a complex matter, involving endogenous, psychogenic as well as social and cultural factors [5]. But, even with only one episode, some cognitive disorders are already present [6]. Post-Schizophrenia depression shows the interest to increase the motivation of patients to their reinsertion and to improve executive functions problems.

A Necessecity: Evaluate Cognitive Functions

To detect cognitive disorders of patients with Psychosis diagnosis, most often, we see that they have deterioration in some specific skills. They have difficulties to remember, have strange way to speak or to think; they have also difficulties in problem solving in everyday life and to develop social relationships.

Each patient is an isolate case, so an individual evaluation of cognitive functions, when symptoms are stabilized is necessary to help them to perform in altered functions. This evaluation must be done only when most of positive symptoms are treated by medications and when the sedative effects of medication begin to disappear. It must never be done at the same time of treatments like ECT (Electro Convulso Therapy), when patients have them because these treatments alter cognitive performance during the time they are done and are reversible at their end. Neuropsychological tests help to evaluate the performances of principal altered functions like memory, language, attention, executive functions, and social cognition. To prevent the

tiredness of patients with medications, it can be done in two or three times of one hour of each session maximum.

National Institute of Mental Health Measurement and Treatment Research to improve Cognition in Schizophrenia construct a complete specific battery named MATRICS [7] which is translated in a lost of languages all over the world. It includes ten tests that assess seven cognitive domains: speed of processing, attention and vigilance, working memory, verbal learning, visual learning, reasoning and problems solving, social cognition. The MATRICS Consensus Cognitive Battery (MCCB) is intended to provide a relatively brief evaluation of key cognitive domains relevant to schizophrenia and related disorders, and was designed to address the following purposes: 1) As an outcome measure for clinical trials of cognition-enhancing drugs for schizophrenia, 2) As an outcome measure for studies of cognitive remediation, 3) As a measure of cognitive change in repeated testing applications, 4) As a cognitive reference point for non-intervention studies of schizophrenia and related disorders.

We could assess each domain with specific tests [8,9] in the countries where this battery is not translated for example. Or we can use another battery which is validated for each case of patient like WAIS III [8]. It has four principal indices: Verbal Comprehension, Working Memory, Perceptual Organization, and Processing Speed. The interpretation is good and easy to do as like as the return that we can make with it for the patients. Some questionnaires to assess social cognition is then the best way to complete the evaluation.

Cognitive Neuropsychology of Psychosis and Cognitive Remediation

In Cognitive Neuropsychology of Schizophrenia, different level of treatment is present: psychotropic drugs at cerebral level, psychotherapy at clinical level and cognitive remediation are a supplementary treatment at cognitive level. Interaction of each treatment at these different levels improves the help that we can give to cure psychosis. Each level of treatment is as important as other one.

Cognitive remediation is a method to improve attention, memory and planification of actions with process of rehabilitation in real life. Programs are diverse in the instructional approaches they use, and there is evidence that this impacts the success with they treat cognition [10]. We want to present here the most used programs in France: IPT (Integrated Psychological Therapy), CRT (Cognitive Remediation Therapy), RECOS (REmediation COgnitive for Schizophrenia) and REHA-COM (REHAbilitation COMputerisée, it means Rehabilitation with the help of Computer programs) and we complete with the presentation of a new program to treat social cognition RC2S (Cognitive Remediation in Social Cognition in Schizophrenia).

The first one « IPT » was developed in Switzerland in 1992 by Brenner and al [11]. Exercises are done in group for the patients with the biggest cognitive disorders. They are done with cards, photos, words and questions to improve executive functions in three degrees: cognitive differentiation, verbal exercises taking care of context, strategy of research. Over the past years, different countries have conducted independ evaluation studies on IPT including schizophrenia patients [12,13]. The most salient results indicate favorable mean effect sizes for IPT in comparison to control groups in different functional areas: neurocognition, social behavior and negative symptoms.

The second one « CRT » was developed by Delahunty and Morice in Australian in 1993 [14] and was revised in Great Britain in 2002 [15]. Therapy consist of face-to-face sessions, each involving a number of paper and pencil tasks that provide practice in a variety of cognitive skills. It is based on three general principles: teaching new efficient information processing strategies, individualizing therapy, aiding the transfer of cognitive gains into the real world. Three modules are present: cognitive flexibility, working memory and planning. Exercises are given at the end of each session to be done at home and increased the motivation of patients. In a randomized controlled trial with participants with a diagnosis of schizophrenia [16], results showed durable improvements in working memory as well as an indication of improvement in cognitive flexibility. So Cognitive Remediation Therapy is associated with durable improvements in memory, which in turn are associated with social functioning improvements in schizophrenia patients.

The specificity of the third one, « RECOS » developed in Switzerland in 1997 [17], is to associate exercises done with a computer to paper and pencil exercises too. After a neuropsychological evaluation for each patient, exercises are adapted to improve only altered cognitive functions: working, verbal and visual space memory, attention an problems solving for example. In a multicenter randomized trial between RECOS and CRT [18], they are both effective in improving cognitive functioning in schizophrenia. The collateral positive effects on symptoms, the awareness of cognitive troubles in both groups, the working memory in CRT arm, and the self-esteem in RECOS arm are concrete benefits for patients.

The fourth one « REHACOM® » was based on the concept developed by the Professor in Neuropsychology Hans Regel in 1986 in his research on attention deficits. At the beginning, this program was used to improve altered functions for patients with brain stroke. Nineteen procedures can be used in exercises done with a computer in individual sessions adapted to each patient after a neuropsychological evaluation. Now, some procedures are used and validated in schizophrenia. The procedures used in this way in France are attention-concentration, topological memory, logical reasoning and shopping in the domain of executive functions. In a randomized trial with control patients [18,19], cognitive performance concerning Attention/vigilance, verbal working memory and verbal learning memory and problem solving improved significantly in the remediation condition when no difference was report in the control condition. But, this study shows that benefits of training did not generalize to functional outcome measures. REHACOM® for schizophrenia is effective in improving performances but the maintenance of such improvements need an individual therapist to help the patient to generalize the performances in functional outcome. Case reports show that rehabilitation leads to the development of social skills, improvement of cognitive functioning, better knowledge about troubles and their treatment, and then permits the construction of a relevant life project [20].

This year, a program currently developed in France, « RC2S » [21], begin to assess the impact of cognitive remediation programs in social cognition. Very few programs have been used and validated in social cognition yet. Social cognitive treatments seem to be more effective on basic process like emotion recognition (already treated in IPT program) than more complex functions like attributional style or social perception. In order to impact higher-order processes, patients need to have ample opportunity for practice of skills until they become fully integrated and least somewhat integrated [22]. RC2S is a

computer based program in this way to stay close to difficulties encountered by schizophrenia patients in their daily social life. To achieve this point, was developed an individualized, flexible program that addresses both specific impairments in social cognitive processes and the objectives of each patient. The fact that transferring skills or benefits acquired during cognitive remediation to daily life is hard, was to design a program based on data from clinical, psychological, and nursing interviews, and to make use of virtual reality. It is based on the analysis of social interaction situations, which patients have to confront in simulation scenes. Ten sessions of cognitive remediation are proposed, ach composed of four parts: analysis of the social interaction situation proposed, virtual reality or simulation scene, review of situation and a proposal of a home-based task. The situations are ranked in increasing order of difficulty, based on both the emotional or affective nature of the situation and the complexity of the characters' interaction. By using an environment close to the real social world, the authors postulate that it allows the patient to practice skills in specific social interactions and could have a greater impact on complex social cognitive functions.

In fact, there is a complex relationship between cognition, schizophrenic symptoms and functional outcome [23]. They interact closely. Each impaired field of cognition that we have reviewed: memory, attention, executive functions, social cognition can be the base of Cognitive Remediation Programs. The advantages of these techniques used in practice are to treat a major problem of Schizophrenic Patients to help them by the way of different level of exercises adapted to each patient (sessions in groups, sessions individual, paper and pencil exercises, computer exercises…). Lost of patients are interested in this treatment in association with the help of the personal accompaniment of a therapist. The disadvantages are that they must be done only with stabilized patients (not in association of a change of medication, or with ECT for example) because patients are at the same time with cognitive troubles closed to secondary effects of other treatments. To have good results in these programs, the patients must have motivation to do it. Some patient are not interested in these programs and prefer developed themselves a cognitive rehabilitation with the help of an individual therapist only. The individual accompaniment of the therapists who practice Cognitive Remediation is always necessary to have a feedback of the feeling and the evolution of patient through the treatment, and help them to find potential Cognitive Remediation procedures in everyday life. In all cases, the help of individual psychotherapies are essential to have an action on the contents of the subject's thought to help patient to construct a life project: best knowledge for self-awareness in Analytic Therapy or Self-client centered Therapy, action on positive symptoms in Behavior Therapy, action on negative symptoms in a help to generalize cognitive skills in cognitive Therapy…

To give an illustration to the best way to use Cognitive Remediation, we can depict the case history of a young patient, Miss F. treated in a psychiatric hospital. She was 21 years old when I met her in a psychiatric hospital for anorectic disorders with behavior's disorganization and flat affects. Then, she took antipsychotic medication: Olanzapine, an individual therapy and a family therapy were done with, in a second time Cognitive Remediation. Her cognitive functions mostly altered were attention and executive functions. 2 REHACOM® procedures were used: we begin with Attention-concentration and Logical Reasoning in 2 individual sessions per week. I saw her in individual interviews too, to help her to think about a life project. Then other procedures were experimented. After 3 months of this ambulatory therapy, she took a work formation and improved her everyday life with activities like hobbies, house-work, social meetings. The advantage of REHACO® procedures is that we can develop new procedures with the evolution of patients and the problems that they meet in the everyday life. For Miss F. for example, she tried to learn to drive but had a lot of difficulties with reactivity and visual-motor coordination. So we thought that exercises done with REHACOM® in these two domains could help her in this project. Personally, I haven't experiment Social Cognition programs yet, but we can think that it's the logical suite to help to cure schizophrenia in the future and to evaluate scientifically the results in everyday life of the patients by the way of computer-based patients. For Miss F. for example, we could think that it would be the best way to help her to find a job and have a boy-friend like that she wanted. For Chronic patients, it's better to begin sessions in groups with IPT program before to begin individual session or paper and pencil, or with computer exercises.

Conclusion

Schizophrenia stays today a complex illness showed by international classifications themselves. Schizophrenia can be cure in more and more cases. The help of Cognitive Remediation in association with medications, psychotherapies and social helps, is validated in number of randomized trials. They develop improvement in different symptoms of schizophrenia which can be used in a large number of patients. The computer based programs actually in construction in association with individual therapists is a hopeful project to cure more and more patients in the different areas of their symptoms. Improvement in cognitive functions like memory, attention, executive functions is now established. We would think that the development of new performant programs in social cognition could really help patients in everyday life and social relationships.

Aknowledgments

N Franck, Rehabilitation Department (CL3R), Le Vinatier Hospital, Lyon, France.

I Amado, Remediation Cognitive and Psychosocial Rehabilitation Center (C3RP), Sainte-Anne Hospital, Paris, France.

F Salomé, Nantes University, France

B Cabus, Psychiatric Hospital Center of Sarthe, France.

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