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Cognitive adaptation training combined with assertive community treatment: A randomised longitudinal trial

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ABSTRACT

Background: Cognitive adaptation training (CAT) targets the adaptive behaviour of patients with schizophrenia and has shown promising results regarding the social aspects of psychosocial treatment. As yet, no reports have appeared on the use of CAT in combination with assertive community treatment (ACT). Our purpose was to evaluate the effect of CAT in comparison with ACT, focusing on social functions (primary outcome), symptoms, relapse, re-hospitalisation, and quality of life of outpatients with schizophrenia.
Methods: The trial was a parallel, randomised, multicentre trial conducted in three centres treating patients with a first episode of schizophrenia disorder. A total of 62 outpatients diagnosed as having schizophrenia were randomly assigned to CAT + ACT or ACT alone. The CAT was conducted in the patient's home and included instruction in prompting for specific actions. The treatment lasted for 6 months, and the patients were assessed at baseline and at 6- and 9-month follow-ups.
Results: The results of mixed-effects regression models indicated no significant differences between intervention group and control group at 6 and 9 months in any outcome [Global Assessment of Functioning at 6 months ($p = 0.32$) and the Health of the Nation Outcome Scales social subscale at 6 months ($p = 0.30$)].
Conclusion: The results from this trial differ from previous CAT trials because use of CAT showed no significant effects. However, the low number of participants may have been responsible for these results. Thus, additional studies are needed to determine whether the use of some elements of CAT can help to make ACT more economically effective.

1. Introduction

Approximately 75% to 85% of patients with schizophrenia have cognitive impairments (Johnson-Selfridge and Zalewski, 2001; Kurtz et al., 2005; Pfammatter et al., 2006). Impairments have a negative influence on patients' ability to maintain work, contact with friends, and independent living and functioning social relationships (Green et al., 2000). Although antipsychotic treatment can decrease cognitive impairment, it cannot eliminate these problems (Peuskens et al., 2005). It therefore seemed relevant to develop compensatory strategies for the remaining cognitive impairments.

Cognitive adaptive training (CAT) has shown promising effects on patients with schizophrenia in terms of an enhanced level of social functioning, decreased relapse rates, and higher compliance compared to treatment as usual. CAT is designed to bypass cognitive deficits by rearranging the environment to support and sequence appropriate behaviours (Velligan et al., 2008b).

CAT has so far only been tested in comparison with groups receiving active comparator conditions and treatment as usual (i.e. standard medication follow-up provided by a community outpatient clinic). In the setting for the present trial, assertive community treatment (ACT) was already the standard treatment and included a low case load for the team members who attempted to provide all the psychiatric and social care the patients required at home (Marshall and Lockwood, 1998).

We combined CAT with ACT to investigate whether CAT would show the same promising effects on patients with schizophrenia in this setting. Although CAT and ACT both use support as an essential element in intervention, CAT and ACT interventions differ in both ideas and methods. CAT places the primary focus on cognitive impairment and the strategies to bypass these (Velligan and Bow-Thomas, 2000), where ACT focuses on helping the patient to live in the community with a disease (McGrew et al., 1994; Burns, 2010). CAT uses individual training on social abilities (Velligan and Bow-Thomas, 2000), where ACT uses support and contacts in the environment to help the patient in regard to symptoms, social problems and daily living (McGrew et al., 1994; Burns, 2010).

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To our knowledge the trial was the first trial on the effect of CAT in an ACT setting. The trial was also the first to target patients with first-onset of psychoses.

The aim of the trial was to evaluate the effect of CAT + ACT versus ACT alone, with focus on social functions, symptoms, relapse, re-hospitalisation, and quality of life of outpatients with schizophrenia.

2. Materials and methods

The trial was a randomised multicentre trial of 62 outpatients allocated to CAT + ACT or ACT alone. The patients were included consecutively from three outpatient clinics in Southern Denmark specialising in the treatment of patients with schizophrenia. The patients completed baseline assessment before randomisation into one of two groups: CAT + ACT or ACT alone group. After randomisation, the patients were treated for 6 months and then the patients were followed up for an additional 3 months. The environmental supports (e.g., signs, text message-systems) remained in use in the CAT + ACT group after the 6-month treatment period. Assessments of symptoms and functioning were conducted at baseline, at 6, and 9 months.

2.1. Patients

From 1 January 2009 to 31 July 2010, 66 patients with a diagnosis in the schizophrenia spectrum (ICD codes in the F2 category) who had been treated for more than 1 year at a psychiatric clinic treating patients with a first episode of schizophrenia disorder and who received psychotherapeutic medication and psychosocial treatment were included in the trial. Patients living at an institution, patients who did not speak or understand Danish, and patients who did wish to participate were excluded.

The patients were identified through contact to the centres. The eligible patients were informed of the possibility of taking part in the project by a member of the primary staff. The patients were given details of the trial by the first author in the patients' homes. The trial was approved from the local ethics review board (S-20080037), and all included patients signed an informed consent and could withdraw without account.

2.2. Blinding

Group assignment was blinded only for the assessors. The assessors were independent of the research team, were involved only in follow-up interviews, and were kept blinded to treatment allocation. The patients were told not to give the assessors information about their group assignments.

2.3. Randomisation

The included patients were centrally randomised to CAT + ACT or ACT alone. The randomisation was carried out through a centralised telephone voice response randomisation. The allocation sequence was computer generated, and stratified for each of the three centres and for social functioning assessed using The Health of the Nation Outcome Scales' (HoNOS) items 9–12 (social problems subscale). The allocation sequence was concealed until the voice response call.

2.4. Intervention and control arm

All the patients received ACT with regular contact with a physician, a community mental health nurse, and a social worker. The treatment included medications and weekly contact with professionals (often in patients' homes). Additionally, all patients received treatment according to the concept described in the OPUS trial (Thorup et al., 2005) including psychoeducation, and social skill training in groups and psychosocial intervention with relatives.

Additionally, patients in the intervention arm received training regarding the solving of concrete problems related to daily life using tools such as schedules, schemes, and signs. The intervention was conducted in the patients' homes in accordance with a revised CAT manual every 14 days for a period of 6 months. All the interventions were provided by the same person who was responsible for the revisions of the CAT manual. This person had long experience in treating patients with schizophrenia and was theoretically prepared in conducting CAT by scientific immersion in cognition and training during a PhD course. The intervention was based on assessment of neurocognitive function using the Frontal Systems Behavior Scale (FrSBe) (Velligan and Bow-Thomas, 2000) and the Wisconsin Card Sorting Test CV4 (WCST) (Heaton et al., 1993). The executive functions were assessed using WCST (contrary to a composite assessment in the original CAT treatment). Patients who completed fewer than four categories or had more than 15% perservative errors on the WCST were categorised as having poor executive functions (Thurston-Snoha and Lewine, 2007; Rodriguez-Jimenez et al., 2008). Patients who had increased scores on apathy received environmental prompts (i.e. automatic short message service (SMSs)) to initiate and complete daily activities. Patients who had increased scores on the disinhibition subscales received help to organise belongings and remove distracting objects from the environment so that they could focus on their daily activities. Patients with high scores on the executive subscale received extensive support and a stronger and clearer indication from environmental cues. Patients with no increase in subscale score received environmental prompts and tools to support daily activities as needed.

2.5. Assessments

At trial entry and at 6 and 9 months, the following information was collected.

2.5.1. Primary outcome

The global social functioning was assessed using the Global Assessment of Function (GAF-F) (Startup et al., 2002). The specific social functioning was assessed using HoNOS social problems subscale. The instrument assesses problems with relationships, activities of daily living, living conditions, occupations, and activities (Wing et al., 1998).

2.5.2. Secondary outcome

Social needs were assessed using the Camberwell Assessment of Need (CANSAS) items 1–5 and 11–24 (Andresen et al., 2000). Symptoms were assessed using the Positive and Negative Syndrome Scale (PANSS) (Kay et al., 1988). Quality of Life was assessed using Lehman Quality of Life Interview, Brief Version (L-QoLI) (Melle et al., 2005).

Data on hospitalisation recorded as the number of hospitalisations, the number of bed-days, and the reasons for hospitalisation were collected from the hospital records.

2.6. Inter-rater reliability

Two investigators trained in the outcome assessments did the assessments. After more than 15 completed interviews, the investigators were assessed for reliability. The reliability test was conducted on the basis of eight PANSS interviews in which investigators did individual ratings. We calculated the intraclass correlation coefficient (ICC) for each item to control test–retest reliability. The ICC was considered positive for group comparison (ICC = 0.89).

2.7. Statistical methods

Differences in functional outcome over time by intervention group and controls were assessed using multilevel mixed-effects linear regression analysis with unstructured variance matrix where the baseline values of the outcomes were used as covariates. p values