CBT For Psychosis, Exacerbated By Parkinson’s Disease: A Case Study

Phoram Trivedi

Consultant Psychologist and CBT Therapist Shalby Hospitals,
SG highway Opposite Karnavati Club Prahladnagar Ahmedabad 380015

Abstract

This case study attempts to discuss treatment based on Cognitive-Behavioural psychotherapy for a Parkinson’s disease patient who was admitted in the cardiac ICU for coronary angiography. The patient developed psychosis exacerbated by ICU environment and poor adherence to dopamine treatment. A plan of treatment was developed, specifically targeting hallucinations and delusions. This plan, combined with quetiapine (antipsychotic medication), helped relieve some disturbing psychotic symptoms and confusion.

Keywords: Parkinson’s disease, ICU psychosis, Cognitive-Behaviour Therapy, Hallucinations, Quetiapine

Case context

The main reason for choosing this case for presentation is the unique style in which ICU environment, cardiac condition, age, emotional stress and Parkinson’s disease collaborate to give rise to a full blown episode of psychosis. Since, both neurological and psychological factors are responsible for ICU deliriums, a combination of pharmacological and psychotherapy was thought of as a first line treatment. Even though, Cognitive Behaviour therapy is evidence based, it’s success in treatment of ICU psychosis (exacerbated by Parkinson’s disease) in an 82 year old patient is something that shows rising possibilities in CBT, especially when eclectic approach is used. It defies the popular clinical belief that age related cerebral atrophies and other neuro-biological conditions thwart the usage of psychotherapy.
Guiding Conception
Diagnostic and Statistical Manual IV-TR (DSM-IV-TR) which is a gold standard for charting out diagnosis establishes various criteria for delirium/ ICU psychosis. This includes impaired cognition, reduced awareness of environment, and physical disturbances arising from general medical conditions (DSM IV, 2000). In some cases, ICU delirium, takes the form of ICU psychosis, especially when hallucinations and altered sensory experiences accompany it. ICU psychosis is most common form of acute cerebral dysfunction in patients admitted in the intensive care units (DSM- IV, 2000). Its severity can be augmented by existing irreversible neurological conditions such as Parkinson’s disease. Etiology of it’s prevalence states that around 80% of patient admitted in ICU experience ICU psychosis in varying degrees. Multicenter study prevalence is between 32.3% to 77% and incidence can vary between 45-87%. (Ouimet, Riker, Beregon, Cossette, Kavanagh & Skrobik, 2007)

The Patient
An 82 year old male, known case of Parkinson’s disease presented with retro sternal discomfort since one month and was admitted to the cardiac unit. ECG showed ischemic heart disease. He maintained a good conversation despite Parkinson’s tremors and mild hyper excitability. He had been prescribed Levodopamine alongside Pacitane as treatment for PD which was not followed by him.

His pre-procedure assessment on MADRS (Montgomery Asberg Depression Scale) revealed a score of 24 (moderate anxiety). It was thought that these are normal reaction to hospitalization and impending angiography. The mood was also stable and he was able to sleep properly.

Even though, the patient was able to maintain a good conversation before angioplasty, he began presenting with symptoms of hallucinations, delusions, extreme sensitivity to usual pain and mild social withdrawal. However, after the angioplasty, his reaction changed markedly. He started showing irritability, hallucinations, and delusions and became extra-sensitive to bodily symptoms. Clinically, we attributed the cause to a mixture of ICU environment, levodopamine and to Parkinson’s disease.

Laboratory Tests
Complete blood count (CBC), serum Electrolytes and CT Brain were ordered to rule out any organic causes of such a sudden onset of psychosis. Also an MRI was considered as an alternative in case of abnormal CT Scan so that haemorrhage post angiography (use of heparin for anti coagulation) could be rule out. Electrolytes were normal and CT Brain was not suggestive of any relevant clinical changes except age
related cerebral atrophy.

**Parkinson’s disease, ICU distress and psychosis: Pharmacotherapeutic Intervention**

Although, it is hard to find specifically worded screening questions with clinical validity in ICU settings, specific questions pertaining to ‘unusual’ experience, paranoia, visual or auditory hallucinations were asked for which the patient tested positive. The basic risk assessment also indicated considerable safety, since the patient did not pose any risk for homicide, suicide or unintended harm. Sudden onset of psychotic symptoms could be best traced to combination of medicines for PD and ICU environment.

As a cause of concern, the psychiatrist started him on quetiapine, an atypical antipsychotic (25 milligrams twice a day) as per NICE guidelines for schizophrenia treatment (NICE, 2008). Twenty hours post commencing Quetiapine, the patient had calmed down significantly. Psychotic symptoms such as agitation, excessive muttering, purposeless movements and hallucinations had significantly reduced. Confusion persisted, despite antipsychotics but the intensity was much lower. Medication controlled the fluctuations between mild aggressiveness to passiveness. After near to complete control of psychotic features, it was suggested that helpful features of supportive Cognitive Behavioural therapy also be considered as an adjunct treatment.

The patient was also referred to a neurophysician so that the dose of levodopamine could be adjusted accordingly. The neurophysician posited that since the patient was not a regular user of Levodopa CR, the usual maintenance dose of (200/25), thrice a day over the past few days would have caused a sudden spike in psychotic symptoms. So, the dose was reduced to (100/25) twice a day. The patients showed marked decrease in irritability and psychosis within less than 20 hours.

CBT is an evidence based therapy (Nelson, 2005). Despite insufficient evidence for Parkinson’s disease psychosis in ICU settings, it is possible to utilize some major aspects of CBT therapy to alleviate psychotic symptoms (Goldenberg, 2008). In the meantime, it was decided that CBT on an individual basis should be started for psychosis. Despite a lack of specific protocols, we relied on NICE guidelines for ICU delirium and schizophrenia treatment (recommendation 1.3.7.1) to help alleviate the distress caused by hallucinations and delusions (NCCMH, 2010).

**Therapeutic rapport and Treatment Plan: CBT for psychosis**

CBT followed a specific model plan for psychoses and schizophrenia as per NICE guidelines (NCCMH). Since, the patient had a cardiac condition which was to be given priority, it was decided that some components of CBT would be used to alleviate distressing symptoms pertaining to psychoses (Nelson, 2005; Kuiper et al., 2005).
In the initial phase of ‘engagement’, a therapeutic rapport was built with the patient. It was not difficult because it was not the first patient-therapist encounter. Familiarity and previously positive interaction helps build a sound therapeutic relationship (Kuipers et al, 2006 & Powe, 2003). Based on a sound therapeutic relationship, we were able to progress smoothly through the course of therapy with minimal resistance from the patient’s side. The patient was informed about confidentiality and was told that he could feel free to express himself emotionally.

The treatment plan was based on targeting delusions, hallucinations and low mood. Cognitive behavior therapy’s important components of cognitive restructuring, which is well evidenced was developed to target hallucination and delusions.

We proceeded onto the next stage of ‘clinical assessment’ in which the experienced of the patient were assessed. The patient was experiencing auditory and visual hallucinations, but they were not causing him significant distress. It can be proposed that the psychotic behavior was a reaction to the secluded ICU environment (Justic, 2000). Apart from these symptoms, the patient also reported significant physical discomfort arising from sensory deprivation, constipation since being put on intravenous antibiotics. There was a significant reduction in sleep and appetite. These mild to moderate side-effects of the ongoing medications could also have exacerbated irritability and contributed to psychotic symptoms (Justic, 2000). Lastly, one cannot ignore the role of PD which can cause altered psychological state and low mood because of poor dopamine levels in the brain (Ravina, Marder, Fernandiz, Friedman & Goetz, 2007).

Based on the therapeutic relationship and assessment, a treatment formulation was made where the primary target was to treat with hallucinations and delusions.

**CBT with Hallucinations**

Cognitive behavior therapy aims at using ‘cognitive restructuring’ to target hallucinations. Hallucinations are sensory/ symptomatic and if the patient understands making sense of them, beliefs in them can gradually be expected to decrease (Leahy, 2003). The process of cognitive restructuring posits that a disturbing experience occurs as a result of stressful thoughts which occur as a result of problem in the environment.

In two sessions of clinical work, the beginnings of hallucinations and life events preceding their onset were explored. The patient reported mild confusion when asked why these ‘visions’ were unique to him whereas no one else could experience them. A number of contributing life events included the recent hospitalization with cardiovascular event, prolonged diabetes and recent diagnosis with Parkinsonism.
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Dobkin& Lesley, 2007; Haddock et al, 1998; Rosenthal & Akiskal, 1994). We collaboratively explored these factors that can possibly contribute to ‘psychotic’ experiences. The patient, after resolution of psychosis, understood that a combination of such events can cause a lot of psychological distress, which could be a possible cause of hallucinations. Thus, being able to relate hallucinatory experiences to psychological stressors helped in reducing them with regular psychotherapy sessions in the ICU over a period of three days (two sessions per day). Cognitive restructuring method brought out good outcome.

CBT with Delusions

The nature of most delusions the patient presented with was non-bizarre. CBT assumes that delusions occur as a result of information processing bias. The patient’s delusional belief was that his relatives were scheming against him and wanted to see him in pain. In the initial assessment, the level of his belief in his delusion was found to be 9 on a level of 0-10 on a Likert self rating scale (0 being the least and 10 being the highest belief) (Segal et al, 2006). Though the belief was strong when assessed, it was found to vary in figures ranging from 7-9 over a couple of hours. Direct confrontation was not used because it results into severe treatment resistance (Segal, Kennedy, Gemar, Hood, Pederson & Buis, 2006).

The initial sessions focused on exploration significant life events leading to these beliefs. Despite attempts, the patient could not come up with memories of significant contributors (life events). In the later sessions, a list of evidences based on clinical interviews was discussed and the patient was asked to see which of these fitted the explanation for his delusions. Out of the many explanations, the patient pointed out that the relative’s reluctance to remove the urinary catheter and the intra venous cannula might have made him believe that they were scheming against him and wanted to see him suffer. Another explanation also included a history of poor experiences with some of the relatives.

The later sessions focused on understanding why the catheter and the cannula were kept. The patient’s physiological discomfort caused by these medical equipment and insomnia for three days was also discussed. Since, the cognitive attribution style was reformed, the belief in delusion had come down to as low as 3. The patient gradually showed pain tolerance and reduced hallucinatory experiences.

Therapeutic close& Feedback monitoring

Since the patient’s general condition improved significantly, the admitting doctors planned a room shift from the ICU followed by a discharge. The psychotherapy had to be brought to a temporary termination because of quick discharge. Residual
depression was still there (MADRS=14) and psychotherapy sessions had not come to a complete termination. The close was not official because the patient would resume regular psychotherapy with me when his hemodynamics improved and he resumed his basic physical mobility.

The last two sessions took place in the general ward before discharge. The catheters and the cannulas were taken off and the patient’s normal sleep regime had returned. The occurrence of the hallucinations had come to a complete halt within forty eight hours of starting Quetiapine. The belief in the delusions and the resultant confusion and paranoia was not as distressing. The self ratings of distress on Likert scale reduced to 2 (occasionally 3). However, the tremors of typical PD persisted. The patient would continue to visit the neurophysician to adjust the dose of Levodopa on an outpatient basis. After 2 weeks, Quetiapine’s dose was gradually reduced to 25 milligrams, ½ tablet a day.

In the last session, the main tenets of therapeutic learning were revised. A written handout which consisted of the basic techniques used to deal with disturbing beliefs was given to the patient as a takeaway. The patient said that he found ‘making sense of the problem’ most useful. Among other components that he found helpful was ‘connecting thoughts, behavior and body sensations’. The patient was eager to come for regular psychotherapy in a month’s time. He even said he would like to explore more about his emotions because he still felt that he felt a little ‘detached’ and ‘mildly traumatic’ about the entire hospitalization experience. It was decided that continuation therapy would resume in three week’s time.

**Discussion and Scope of improvement**

The therapy worked considerably well in alleviating basic psychotic symptoms. Cognitive restructuring helped the patient understand the cause of his psychotic experience. At the same time, emotional support helped to ease the process of cognitive restructuring. Restructuring in CBT is not a forceful challenging of the existing cognitive processes (Mitchell, 2004). It understands the experience behind the disturbing cognitions before helping the patient reformulate beliefs by widening their understanding about the cause (Mitchell, 2004). The positive effects of cognitive behavior therapy components combined with pharmacotherapy, shows that there is a linear relationship between physiological and psychological distress.

Cognitive distortions or ‘faulty thinking’ is the main reason behind most emotional/ psychological problems (Leahy, 2003). Though the cognitive distortions were not extensively explored, therapy lay in the fact that he used causal attribution more than often and restructuring helped him put together all links. Cognitive distortions and tracing their history through a number of past experiences can be understood in depth once outpatient psychotherapy started.
What worked for this particular patient was his understanding that altered sensory experiences can result from a variety of reasons which include insomnia, intra venous cannula, catheter and other equipment related to the intensive care unit. Hallucinations were not challenged but their experience was reconstructed in such a manner that the patient learnt to tolerate the symptoms.

Emotional reasoning and mood rating using Likert scale were two other CBT tools that worked positively for the patient (Nelson, 2005; Justic 2000). Being admitted in the ICU for a cardiac problem was a big contributor to high negative emotions. A highly disturbed patient finds it extremely difficult to verbalize an emotion which results into somatization that often causes psychotic experiences when combined with dopamine level fluctuations. Through emotional reasoning, the patient was made to see that negative emotional experience on a continuous basis can affect the body by producing unusual sensations. Emotional reasoning also helped the patient talk about the discomfort experienced in the body (Justic, 2000). Research shows that emotional reasoning helps at a neurological level by affecting the sensory gateways and slowing down hyperactivity of neural action potentials pertaining to pain (Bennett, 2006; Zahodne & Fernandiz, 2008). Used alongside cognitive restructuring and emotional reasoning, mood ratings helped the patient comprehend the positive changes induced by the talk therapy. Thus, the patient was not only able to understand the reasons for his overall discomfort, but also tolerate it well. Good tolerance with therapist’s encouragement worked as a positive reinforcement and gradually symptom tolerance was better.

Although, it was extremely difficult to use structured CBT with this ICU patient, it can be noted from the above results that a few selected components of CBT provided good relief from symptoms. Despite these benefits, the therapy is not devoid of its shortcomings.

One of the major shortcomings was the situation. The patient was in the ICU bed. With restrictions in form of ICU equipment attached to the patient to monitor his cardiac condition, it was difficult to have a therapy office environment to facilitate smooth psychotherapy. There were no collaborative goals or fixed agenda, though it was collaboratively decided that decrease in overall physical and emotional discomfort would be the goal.

Some specific components of CBT were chosen and tailored to meet the goal of discomfort-relief. The three major components here are cognitive restructuring, emotional reasoning and skill training. Even though these worked well, there are other components that could have been used to make the therapy more effective. Among these is ‘skill revision’ which could have helped the patient revise and continue the practice of useful thinking as opposed to distorted thinking.

Fourth generation therapy such as Mindfulness thinking can be extremely useful in
aiding the process of ‘symptom tolerance’. The psychological and physical distress caused by the delusional thoughts and hallucinations could use symptom tolerance and ‘watch the thought’ technique alongside cognitive restructuring to bring better results in short term therapy in Intensive care units.

Another limitation of the current therapy is its’ insufficient focus on the negative symptoms of psychoses that are more evident when it concerns a condition like Parkinsonism. However, the emotional reasoning used here only seems to ‘address’ the emotional issues arising as a result of multiple illnesses and hospitalization. Scope of their address can be widened in the planned therapy sessions post discharge. This would not only provide a feasible environment to conduct therapy, but also provide an opportunity to deal with core beliefs and unhelpful rules of living that govern the vicious cycle of thoughts, emotions, physiology and behavior that may lead to relapse in future (Leahy, 2003; Justic, 2000; Haddock et al, 2008).

Lastly, the therapy showed benefits in relieving symptoms, but it cannot be affirmed that these changes will pervade even after discharge. The pattern of reduction was gradual but psychotherapy is needed to maintain effective changes along with the medical treatment. Distress and disability reduction was managed very effectively at hospital level, but further work needs to be done in order to enable empowerment and recovery.

Effective follow up and adherence to current medicine and psychotherapy needs to be done to affirm the success of CBT in patients with a complicated condition such as this. Since components have shown success in symptom relief, a model of psychotherapeutic treatment can be developed and improvised upon. Such a model can be designed in an easy-to-use manner as a set of protocols. With good scopes of research in this field, there is a lot of work for neurologists, psychologists and psychiatrists.

References

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