

INVESTIGATION OF TREATMENT RESPONSES OF SCHIZOPHRENIA PATIENTS TO ANTIPSYCHOTICS AND ECT

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ABSTRACT

Schizophrenia is debilitating neuropsychiatric disorder that is characterized by the severe psychotic symptoms including hallucinations, delusion and illusions. Overall worldwide prevalence of schizophrenia is 0.85%. A number of factors are associated with the development of disorder. The treatment therapies used for the disorder include medication therapy that is used as primary treatment for schizophrenia which includes typical and atypical antipsychotics and , Electroconvulsive therapy(ECT). Non response is the usual phenomenon in response to treatment therapies that is observed in the schizophrenia patients so the treatment is switched to more effective one. These therapies usually produce differential responses in the patients but none of them is proved to produce a permanent response. So Present study is designed with an aim to investigate the use of medication (typical and atypical antipsychotics) and ECT and, the response of schizophrenia patients to these therapies. The results indicate that most of patients were resistant to typical antipsychotics and no of remission and relapse was high in response to these medicines. Though remissions and relapses were also observed in response to atypical antipsychotics but the frequency of remission and relapse both is low as compared to atypical antipsychotics. ECT was given to small number of participants who were resistant to medication and rate of both remission and relapse were high in this group of patients. So this might be the reason for which ECT is less frequently used in the treatment of schizophrenia patients.

Keywords: ECT, Antipsychotics, Treatment resistant, Remission, Relapse

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INTRODUCTION

Schizophrenia is a psychiatric disorder with the most severe psychotic symptoms. The prevalence of which is 0.8 to 1 per cent. Different psychotic symptoms characterize the disorder. Most common and important features are the altered motor activity, delusions and hallucinations. Outcomes of the disorder are varied, that mostly results in the relapses during the treatment. It finally ends with the altered, isolated and disadvantaged personality of the sufferer in the society (Owen *et al.*, 2005). It is heritable as well as a sporadic disease, the onset of which occurs after adolescence or in the early childhood that results in the distress and mental disability. Diagnoses are based on the positive and negative symptoms. Negative symptoms are amotivation, reduced expression, social withdrawal, and poor relationship, and the positive symptoms include disorganized speech, thinking and behaviour and also delusions and hallucinations (Karam *et al.*, 2010). Other important features are the cognitive deficits which includes poor processing speed, poor memory and executive functions of the brain. The sufferers of this disease may also have the disproportionate mood symptoms and they can have substance abuse. It is reported that approximately 10 per cent of the sufferers may have done suicide attempts (Lewis and Lieberman, 2000). This disorder has also been considered as a neurodevelopmental disorder which is having a clear neuropathology and evidence based genetic risks. Symptoms on the bases of which the diagnosis is established, are usually not presented in the early childhood. The symptoms of the endophenotypic type, related to social and the cognitive behaviour may proceed to psychiatric illness. As the disease is established fully after adolescence, the diagnosis and the treatment cannot be developed properly despite of the trends that are regular in this disease. These trends include the reduced median lobe, enlargement of the ventricles and an increase in the amount of stored and released dopamine (Camargo *et al.*, 2007).

Interaction of multiple genes and their collaborative action is associated with the onset of mental disorders. Genes regulating the nervous system act by instructing the development of nervous system and the enzymes involved in the synthesis, transport and action of the neurotransmitters and their receptors. During whole life, there is an interaction of the genetic factors with the

environment which is responsible for the creation and development of the emotions, thoughts and the behaviour of a person (Matsuzaki and Tohyama, 2010). Many genes have been identified to modulate their affect by the environment. The most crucial in the identification and understanding of psychopathology and the genetics of schizophrenia is to identify the candidate gene and the abnormal products of that gene in the schizophrenia (Tsuang., 2000).

Antipsychotic medications are primarily used for the treatment of schizophrenia and other psychotic disorders. They have traditionally being categorized into two groups, first generation antipsychotics(FGAs) and second generation antipsychotics(SGA). The side effects that are seen after the use of FGAs led to introduction of SGAs and these are typically named as atypical antipsychotics.(Ginover and Kapur., 2012)Less burden of side effects is associated with the use SGA but are associated with the metabolic and cardiac abnormalities.(Kapur and Remington., 2001)

For schizophrenia treatment, antipsychotics are recommended as primary treatment all over the world(Falkai et al., 2005, Lehman et al., 2004, Hayashida et al., 2006) which include typical and atypical antipsychotics (Leucht et al., 2009a). Now the use of typical antipsychotics has been replaced with the atypical antipsychotics (Bitter et al., 2008). Literature shows that atypical antipsychotics are a heterogeneous group of medications and have different efficacy and tolerability.4,8-10. Several studies have also shows the greater efficacy of clozapine and clozapine but at the same time they also pose risk of weight gain and other metabolic disorders. (Leucht et al., 2009, Leucht et al., 2009b, Boter et al., 2009, Lieberman et al., 2005, Hatta et al., 2009, Attard et al., 2012). Treatment response is a significant reductions in the symptoms of schizophrenia and relapse is the exacerbation of the symptoms after a remission or responseDossenbach et al ., 2005, Haro et al., 2006). Both type of responses are observed in schizophrenia but it is not clear which factor is responsible for the relapse. So, present study is designed to evaluate the association of relapse with medication and ECT, that is done during the treatment of schizophrenia.

METHODOLOGY

Participants

All of the participants included in the study were patients of chronic schizophrenia and diagnosis was done by psychiatrists according to Diagnostic and Statistical Manual of Mental Disorders

(DSM IV, Text Revision, American Psychiatric Association). A total of three 3 study sites including inpatients and outpatient department were selected for data collection of schizophrenia patients. Study approval was obtained from “Ethical Review committee for the use of humans subjects” PMAS Arid Agriculture University, Rawalpindi and informed consent was taken from patients or their representatives.

Study Design and Procedures

The study was designed as a retrospective, non interventional observational study where all the procedures including diagnosis and the prescription of medication was left to discretion of treating psychiatrists. Information was collected after the detailed assessment of patients by the psychiatrists. Severity of illness was measured by the treating physicians. Response of the patients to treatment were grouped into four categories according to the medication response, where 1 group was for the patients with remission, 2nd group showed relapse, 3rd group showed positive response and 4th category was group of non responders.

Treatment of patients was done with the ECT and use of antipsychotics(typical and atypical antipsychotics). The response of patients was recorded with all types of treatments, they received. The data was collected and analysed using SPSS v.21.

RESULTS AND DISCUSSION

Baseline characterization of sample

The studied sample included 200 patients of chronic schizophrenia, of which 25.5% were females with the age distribution of 16 -55 years(32.28 ± 11.28) and 74.5% were males in the range of 21-68 years(30.33 ± 13.97). Patients showed differential responses based on the type of treatments used (figure 2). Gender base distribution of treatment response was: of 40 females participated in study, 15% females showed no response to treatment, remissions were observed in 55% females, relapse was observed in 27.5% females and there were no female patients with positive response to treatment therapy. Of 160 male patients, 10.4% male patients showed no response to treatment, remissions were observed in 54.4% male patients, 21% male patients showed relapse and 14.2% male patients showed positive response to medication with a decrease in symptoms. (figure 1).

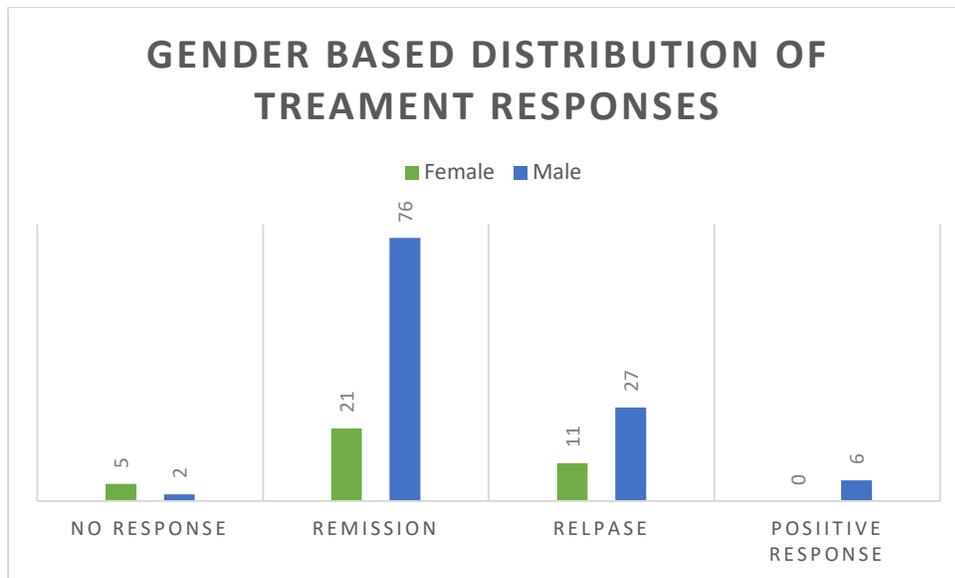


Figure 1: Gender based distribution of treatment responses shown by schizophrenia patients.

Response to ECT

This analysis of psychiatric clinical care estimated the response, relapse and of patients to treatment therapy given to schizophrenia patients who were treated with different medicines including typical or atypical antipsychotics and, ECT monotherapy. Of 200 patients, ECT was used in the treatment of 30%(N=60) patients and 70%(N=140) patients were not given ECT in their treatment. Response to ECT was assessed and the results from the detailed are: there were no patients which received ECT in their treatment showed negative response, 60.8% of the patients showed remission and 39.1% patients showed relapse after treating with ECT. There were no patients which showed complete, longterm recovery from ECT(figure 3). Results showed that rate of remission(N=97) was high in response to all types of treatments(typical antipsychotics, atypical antipsychotics and ECT) followed by relapse(N=40) and the positive or complete response was showed by small number of patients. ECT was given to 30% of the patients participated in the study which shows that ECT is uses less frequently in treatment therapy of schizophrenia. Despite of available evidence of the efficacy, this treatment is underutilized and is often used as a last resort in treatment resistant schizophrenia. the usual indications of its use are, to augment pharmacotherapy and clozapine resistant schizophrenia patients. (Grover et al., 2019). In the present study we observed that treatment with ECT was associated with significantly increased

rates of remission (N=83) and relapse (N=48) so the higher rates of relapse with severe symptoms might be the reason of underutilization of ECT in the treatment therapy of schizophrenia.

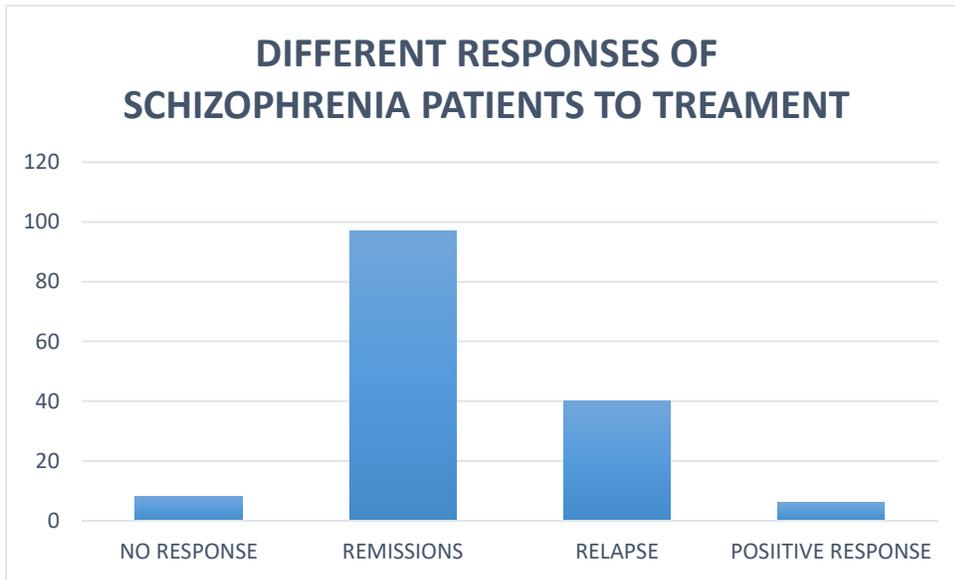


Figure 2: Overall Response shown by schizophrenia patients to treatment therapies.

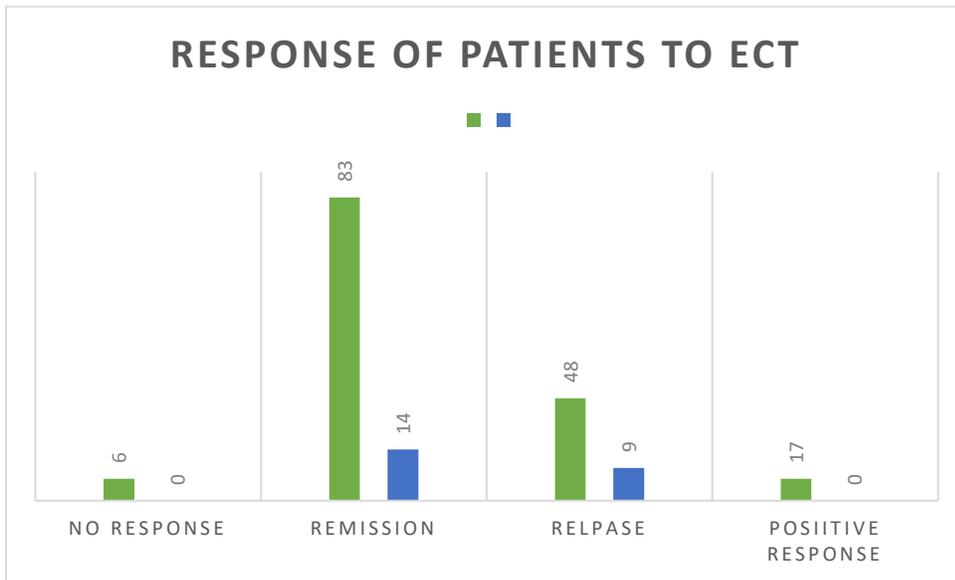


Figure 3: Differential response shown by the patients to treatment with ECT and the treatment therapy without ECT.

Response to Typical and Atypical Antipsychotics

Typical antipsychotics and atypical antipsychotics were used in the pharmacotherapy of schizophrenia.. Differential response shown by the antipsychotics was assessed. Atypical antipsychotics were given to 43.5% of patients(N=97)and the calculated frequencies for differential responses showed by patients are:2% showed no response to medication, 69% of the patients showed remissions, 22% patients showed relapse and 7% patients showed positive longterm response. Typical antipsychotics were given to 56.5% patients and the response shown by them is recorded as: 10% patients showed positive response, remissions were observed in 48 % patients , frequency of relapse was 30% and 2% patients showed no response at all. (figure 4) Rates of remission to typical antipsychotics were high as compared to the atypical antipsychotics. Atypical antipsychotics are given due to intolerability and in effectiveness of typical antipsychotics to treatment resistant schizophrenia. In present study, atypical antipsychotics were given to a small group of patients and typical antipsychotics were given to 56.5% of patients. Since, Non response is frequent phenomenon in psychiatric pharmacotherapy and patients, schizophrenia patients are usually observed to become non resistant to treatment so they are switched to atypical antipsychotics. Present study also indicates higher rates of relapses and remission in response to typical antipsychotics. So for this groups of patients, pharmacotherapy is switched to atypical antipsychotics. (Lally and Cabe , 2015).

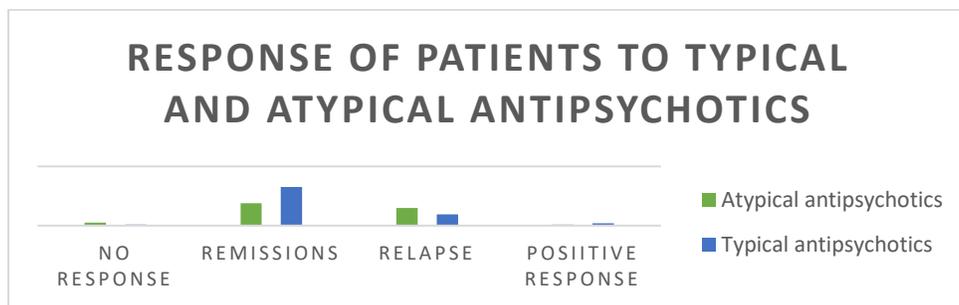


Figure 4: Overall Response of Schizophrenia Patients to Antipsychotics (Typical And Atypical).

CONCLUSION

Heterogeneity in terms of treatment responses of the schizophrenia patients to antipsychotic therapy and ECT has led to trial and error strategy for treatment of disorder. Since there is in ability

to predict the response, there are no effective therapies that are defined for specifically treatment resistant schizophrenia. Atypical antipsychotics are used as an effective treatment but its side effects hinders its use as most effective and potent medication therapy.

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