



COMPARATIVE PROFILE OF ATYPICAL ANTIPSYCHOTICS IN PATIENTS OF SCHIZOPHRENIA

¹*Dr. Mridul Sharma, ²Dr. A. Q. Siddiqui, ³Dr. Prerana Gupta, ⁴Dr. Seema Singh, ⁵Dr. Shweta Chauhan

¹Post-graduate Student, Department of Psychiatry, Teerthanker Mahaveer Medical College & Research Centre, Teerthanker Mahaveer University, Moradabad, Uttar Pradesh, India.

²Professor & Head, Department of Psychiatry, Teerthanker Mahaveer Medical College & Research Centre, Teerthanker Mahaveer University, Moradabad, Uttar Pradesh, India.

³Associate Professor, Department of Psychiatry, Teerthanker Mahaveer Medical College & Research Centre, Teerthanker Mahaveer University, Moradabad, Uttar Pradesh, India.

⁴Assistant Professor, Department of Psychiatry, Teerthanker Mahaveer Medical College & Research Centre, Teerthanker Mahaveer University, Moradabad, Uttar Pradesh, India.

⁵Post-graduate Student, Department of Psychiatry, Teerthanker Mahaveer Medical College & Research Centre, Teerthanker Mahaveer University, Moradabad, Uttar Pradesh, India.

* Corresponding Author: Dr. Mridul Sharma

Post-graduate Student, Department of Psychiatry, Teerthanker Mahaveer Medical College & Research Centre, Teerthanker Mahaveer University, Moradabad, Uttar Pradesh, India.

Article Received on 15/01/2017

Article Revised on 05/02/2017

Article Accepted on 26/02/2017

ABSTRACT

Aims & Objectives: To evaluate the effectiveness of various atypical antipsychotics in psychopathology of schizophrenic patients. **Methodology:** 40 patients diagnosed as per DSM 5 criteria for Schizophrenia admitted in the In-patient department of psychiatry at a tertiary care hospital participated in the study after obtaining due consent. 10 patients each were randomly assigned to treatment with the following four atypical antipsychotics: Olanzapine, Risperidone, Quetiapine and Aripiprazole. Positive and Negative Symptom Scale (PANSS) was administered on the first day of admission to assess baseline pathology followed by successive administration of PANSS at Day 7, Month 1 and Month 2 following initiation of treatment to assess the extent of improvement with various drugs. Results were tabulated using SPSS v20 and independent sample t tests were applied. **Results:** Most significant improvement in psychopathology was seen in patients on treatment with Risperidone followed by Olanzapine. There was a significant difference found ($p < 0.05$) between the PANSS score for Risperidone and Aripiprazole at 2 months. **Conclusion:** This study shows similar results as demonstrated by comparable studies done in other countries. The baseline psychopathology as calculated using PANSS scores showed improvement after 2 months of antipsychotic treatment with all antipsychotics evaluated in this study.

KEYWORDS: Schizophrenia, Positive and Negative Symptom Scale (PANSS), Risperidone, Olanzapine, Quetiapine, Aripiprazole.

INTRODUCTION

Schizophrenia is a clinical syndrome of variable, but profoundly disruptive, psychopathology that involves cognition, emotion, perception, and other aspects of behaviour^[1]. Several studies have appeared over the past few years which have clearly indicated marked and severe cognitive impairment in patients who have been taken off their medication, or in patients who have never been prescribed any neuroleptic or anticholinergic medication^[2]. Investigators have reported significant beneficial effects of risperidone, olanzapine, and ziprasidone on psychopathology^[3]. This study was conducted to further evaluate the effectiveness of various atypical antipsychotics on the various aspects of psychopathology of schizophrenic patients and to do a

comparison amongst various atypical antipsychotic medications regarding the same.

MATERIALS AND METHODS

The present study was conducted in the Psychiatry inpatient department of a tertiary care hospital, over a period from January 2015 to June 2016. The study was prospective, clinical and instrument-rated and consisted of 40 patients diagnosed with Schizophrenia as per the guidelines laid down by DSM 5. Out of the total patients, 10 patients each were randomly assigned to 4 different SGAs – olanzapine, risperidone, quetiapine and aripiprazole. The baseline psychopathology was assessed using PANSS^[4]. Ethical clearance was taken from Institute's Ethics Committee and a written informed consent was taken from patients before including them in

the study. The socio-demographic data was collected by using a Semi structured proforma. After the baseline evaluation of their psychopathology and cognition, follow up assessments of the same were done using PANSS at day 7, after 1 month and after 2 months of starting treatment. Data was analysed using SPSS 20.0 and statistical differences in proportion were calculated using the chi square test, t-test and ANOVA.

RESULTS

Of the forty patients, majority were males (N=24). There was no difference in the marital status of the patient as the number of single patients was almost the same as the number of married patients (N=19 and N=21 respectively). 62.5% of the subjects in this study (N=25) in this study were Muslim by religion. 82.5% of the patients in the study belong to lower socio economic class with only 7 patients belonging to the middle class. The socio-economic class of the patient was calculated using the Kuppaswamy scale^[5]. Analysis revealed that risperidone was the best drug amongst the atypical antipsychotics tested here. The improvement in the psychopathology and cognitive functioning of the patients was seen most with risperidone as compared to other antipsychotics. As risperidone came out to be the most effective drug, in post hoc analysis, it was taken as the control group (J drug), to test the efficacy of the other three antipsychotics – olanzapine, quetiapine and aripiprazole against it to assess their efficacy in various parameters of psychopathology. Significant difference was found ($p < 0.05$) between the PANSS score for Risperidone and Aripiprazole at 2 months, signifying that amongst all antipsychotics, aripiprazole was the least efficient in controlling the psychopathology of Schizophrenia. Both olanzapine and quetiapine showed no significant differences in controlling the symptomatology of the disorder as compared to Risperidone. In the sub-scales of positive and negative symptomatology however quetiapine was the slowest in showing response towards positive symptoms. The least response towards positive symptoms was also seen with quetiapine as significant difference of mean PSS score between Quetiapine and Risperidone at day 7 ($p=0.041$), 1 month ($p=0.0019$) and 2-month ($p=0.007$) time interval with a mean difference of 11.2, 13.3 and 14.9 score more for Quetiapine than Risperidone respectively.

A significant difference of mean GPS score between Aripiprazole and Risperidone at 1 month ($p=0.044$) was observed with a mean difference of 18.6 score more for Aripiprazole than Risperidone and 95% confidence interval for the mean difference was 95% CI (0.54 to 36.66), signifying that aripiprazole had the least positive impact on the general psychopathology of the patient.

DISCUSSION

Of the forty patients, majority were males (N=24). This is in concordance with global sex ratio of Schizophrenia as the disease demographic favours the male sex slightly. 62.5% of the subjects in this study (N=25) in this study

were Muslim by religion. This is in accordance with the religion wise population distribution of the region in which the study has been conducted and shows no association between Schizophrenia and a particular race or religion. As the study has been conducted in a catchment of Muslim populated religion, hence the results reflect the same.

The improvement in the psychopathology and cognitive functioning of the patients was seen most with risperidone as compared to other antipsychotics. While this finding is in accordance with various studies conducted by Wang *et al*^[6], Cuesta *et al*^[7], it also contradicts the finding of various other studies, for e.g. a large multicentric study conducted by Spellman *et al*^[8], comparing quetiapine and risperidone on Schizophrenic patients found that the improvement in cognition, though seen with both the drugs, was more pronounced with those on quetiapine.

Cuesta *et al*^[7] conducted a study on thirty-eight moderately responsive patients of chronic Schizophrenia (as per DSM-IV-TR). They divided the patients into two groups: those receiving olanzapine and those on other antipsychotics and compared both the groups for changes in psychopathology and cognitive functions at baseline and after treatment at 3 and 6 months. As per the suggestions of their treating psychiatrists, twenty-one patients were allocated to the olanzapine group and seventeen to other antipsychotics. Analysis revealed that patients receiving olanzapine showed more improvement on negative symptomatology and executive functioning as compared to the other group. This difference was significant even after removing various confounding factors like age, sex, previous treatment history and dosing of the antipsychotic agent. Post-hoc analysis of the other antipsychotic agents group also revealed significant finding in this study. This group was further divided into two subgroups, with nine patients on risperidone and eight on conventional or typical antipsychotics. Detailed evaluation of this subgroup revealed that risperidone also resulted in improvement in negative symptoms and improved cognition as well.

Spellmann *et al*^[8] conducted a study on forty-four patients of Schizophrenia to study and compare the effects of quetiapine and risperidone on cognition and negative symptoms. It was a double blind follow up study with follow ups at week 6 and week 12. The results of the study showed that both quetiapine and risperidone showed significant improvement in improving the psychopathology and negative symptoms on both PANSS and SANS scales. The rates of developing extrapyramidal symptoms as assessed by SAS scale was higher with risperidone as compared to quetiapine.

In a large, multicentric, double blind study conducted by Zhong *et al*^[9] over a period of 8 weeks, out of the 673 patients, 338 were randomly assigned to quetiapine (200-800mg/day) and 335 were assigned to risperidone (2-

8mg/day). The results showed that both the groups showed comparable effects on psychopathology based on PANSS total and sub-scores and that the risperidone group had higher rates of EPS as compared to the quetiapine group.

CONCLUSION

It has been proved in almost all studies that starting the patient on any antipsychotic agent has shown significantly more efficacy in controlling the psychopathology of the patient as compared to a placebo agent. With the advent of newer atypical antipsychotics and the relatively safer adverse effect profile of the drugs, treatment of Schizophrenia has become more convenient and effective as compared to what it used to be earlier.

REFERENCES

1. Sadock, Benjamin James; Sadock, Virginia Alcott. Kaplan & Sadock's Synopsis of Psychiatry: Behavioral Sciences/Clinical Psychiatry, 10th Edition.
2. McCreadie, R. G., Latha, S., Thara, R., et al (1997) Poor memory, negative symptoms and abnormal movements in never-treated Indian patients with schizophrenia. *British Journal of Psychiatry*, 171: 360–363.
3. Keefe R S E, Silva S G, Perkins D, Lieberman J A. 1999, *Schizophr Bull.*; 25: 201–232.
4. Kay SR. Positive and negative syndromes in schizophrenia: assessment and research. Psychology Press; 1991.
5. Mishra D, Singh HP. Kuppuswamy's socioeconomic status scale—a revision. *Indian journal of pediatrics*. 2003 Mar 1; 70(3): 273-4.
6. Wang J, Hu M, Guo X, Wu R, Li L, Zhao J. Cognitive effects of atypical antipsychotic drugs in first-episode drug-naïve schizophrenic patients. *Neural regeneration research*. 2013 January 1; 8(3): 277.
7. Cuesta MJ, Peralta V, Zarzuela A. Effects of olanzapine and other antipsychotics on cognitive function in chronic schizophrenia: a longitudinal study. *Schizophrenia research*. 2001 March 1; 48(1): 17-28.
8. Riedel M, Müller N, Spellmann I, Engel RR, Musil R, Valdevit R, et al. Efficacy of olanzapine versus quetiapine on cognitive dysfunctions in patients with an acute episode of schizophrenia. *European archives of psychiatry and clinical neuroscience*. 2007 Oct 1; 257(7): 402-12.
9. Zhong KX, Sweitzer DE, Hamer RM, Lieberman JA. Comparison of quetiapine and risperidone in the treatment of schizophrenia: A randomized, double-blind, flexible-dose, 8-week study. *The Journal of clinical psychiatry*. 2006 July 14; 67(7): 1093-103.