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A Comparative Study of Efficacy and Adverse-Effects of New Anti-Psychotic Lurasidone with Olanzapine, Quitiapine and Risperidone in Patients of Schizophrenia

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ABSTRACT

Introduction: Schizophrenia is a debilitating disorder, which has affected the lives of the diseased & the people around them in troublesome. New interventions are made regularly for the best outcomes from the available treatments. Aim of the study of to compare the efficacy & side-effect profile of the new drug-Lurasidone with other atypical anti-psychotics-olanzapine, risperidone & quitiapine.

Materials & Methods: The presented study was conducted over the duration of 15 months (January 2018- March 2019). This study comprises of 100 subjects, who were divided in 4 groups & drugs were randomly provided to them (25 each). Subjects were evaluated using various instruments.

Results: It was found that the efficacy of Lurasidone was almost similar to other drugs, although scoring better with PANSS & BPRS. Metabolic changes i.e., serum cholesterol, serum LDL, HDL, VLDL levels were found greater in other drugs as compared to lurasidone. Fasting glucose levels and weight gain were found to be increased in drugs especially olanzapine when compared with lurasidone.

Keywords: Schizophrenia, Lurasidone, Adverse Effects.

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INTRODUCTION

"Schizophrenia is a slowly progressive deterioration of the entire personality which involves mainly the affective life and expresses itself in disorder of feeling, thought and conduct and a tendency to withdraw from reality".[1]

Eugene Bleuer

Schizophrenia is a severe, multi-faceted & complex mental disorder & has been referred to as "youth's greatest disabler" since it mostly affects people in productive years of their life, 15-45 years.

The disease does not suddenly appears one fine day. It mainly divided into 2 types of symptomatology, namely: positive & negative. Positive symptoms include hallucinations-false perception involving all 5 sense organs (auditory being the most common); delusions, disorganized speech & behavior, catatonic behavior & agitation. Negative symptoms include affective flattening or blunting, alogia: restrictions in fluency & productivity of thought & speech.[2] It is the 7th leading cause of Years Lived with Disability (YLDs) at global level, accounting for 2.8% of total global YLDs. Prevalence is estimated to be 2.4 to 6.7 per 1,000 population in developed countries & in the range of 1.4-6.8 per 1,000 population in developing countries. SGAs/atypical[3]- like risperidone (1994), olanzapine (1996), quetiapine (1997), ziprazidone (2001) & aripirazole (2002), are now considered drugs for the 1st line treatment of SCZ. They act on D2 &5HT2 receptors. LURASIDONE[4]- with the view of developing a drug with lower anti-cholinergic S/Es (like sedation, nausea, vomiting) & other S/E like- weight gain, raised cholesterol & EPS etc.as seen with other SGAs & FGAs, lurasidone was introduced for treatment of SCZ in 2010, was FDA[5] approved in 2015 & was approved by Central Drug Standard Control Organization (CDSCO)[6] of India in 2017. Studies done till now, have shown promising results with this molecule with faster onset of anti-psychotic action.

Lurasidone, an azapirone derivative was discovered by Dainippon Sumitono Pharma research laboratory in Japan. Lurasidone has a high binding affinity for D2, 5-HT_{2a}& 5-HT_7 receptors (antagonist effect) & alfa-2c receptors (antagonist effect) comparatively moderate affinity for 5-HT_{1a} (partial agonist effect), & no affinity for M1 & H1 receptors.[7] Lurasidone's binding affinity not only to 5-HT_7, but noradrenaline alfa-2_c receptors, & 5-HT_{1A}, have also implicated relevance to cognitive function & its inability to bind with

other receptors like M_1, H_1,etc have led to decrease in its metabolic side-effect profile which was c'mon with other 2nd generation psychotropics. Lurasidone has a half-life of 1.3h (T_{MAX}) & is easily absorbed orally. In a 6-month open-label study, weight loss (>7% of body weight) was reported in 17 subjects from baseline, whereas only 14 patients reported weight gain.[8]

In a longer comparative study of lurasidone & risperidone, showed median changes in low-density lipoprotein cholesterol levels and triglycerides in the lurasidone group.[9]

Another study conducted for a period of 12 months that evaluated the relapse prevention efficacy of lurasidone (40-160mg/d) & quitiapine XR, (QXR) (200-800/d) in patients who previously responded to them in an initial 6-week trial It was observed that: Psychotic relapse rate & severity was more frequent in QXR when compared with lurasidone (9.8% vs. 23.1%, p<0.005). Metabolic parameters showed increase in total, LDL cholesterol & triglycerides at 6 months but minimal at 12 months in QXR. .

MATERIALS & METHODS

The proposed study was a comparative study and was carried out in psychiatric department of a medical college & hospital. Socio-demographic details of 100 patients was recorded using self-structured performa, who visited psychiatry OPD. 25 patients each, after randomization, were included in Lurasidone gp, Olanzapine gp, Risperidone gp & Quetiapine gp.

The doses were titrated as per the guidelines on follow-up visits.

Instruments

A Semi Structured proforma having socio demographic variables of patient PANSS (positive & negative symptoms scale).[10] BPRS (Brief psychiatric rating scale)[11] AIMS (Abnormal Involuntary Movement Scale)[12] CSFQ (Changes in Sexual Functioning Questionnaire)[13] ECG, FBS, Lipid Profile & BMI.

Table 1: Gender Distribution

Gender	Frequency	Percent
Male	40	40.0%
Female	60	60.0%
Total	100	100.0%

RESULTS

The mean BMI & other parameters at day 1, week 4 and week 8 were compared between 4 groups using the One-way ANOVA test with post-hoc bonferroni test for inter-group comparisons. There was no significant difference in mean BMI, BPRS, PANSS, AIMS & CSFQ score at day 1, week 4 and week 8.

One-way ANOVA test post-hoc bonferroni test* Significant difference:

The mean serum cholesterol was significantly more among Risperidone and Olanzapine compared to Lurasidone at week 8.

The mean serum Triglycerides at week 8 was significantly more among Risperidone compared to Quitiapine and Lurasidone. The mean serum VLDL cholesterol at week 8 was significantly more among Risperidone compared to Lurasidone. At week 8 serum HDL cholesterol was significantly more among Risperidone compared to Lurasidone. The mean serum LDL cholesterol at week 8 was significantly more among Olanzapine and Quitiapine compared to Lurasidone. The mean fasting blood sugar at week 8 was significantly more among Risperidone, Olanzapine and Quitiapine groups compared to Lurasidone.

DISCUSSION

Our study here reports the result of a head-to-head comparative, follow-up which noted baseline values for: BPRS, PANSS, AIMS, CSFQ & follow ups of each were noted at week 0, week 4 & week 8. All the drugs were found to be somewhat equally efficacious with slight differences as compared by various scales. There was an early improvement in BPRS & PANSS total score when treated with lurasidone. It was found that in this study rate schizophrenia occurrence was more in lower socio-economic status, approx. 69%. Which is in accordance with study of Dohrenwend B. et. al. the observation that schizophrenic patients are more likely to be present in lower socio-economic position.[14,15]

It is seen that the disease is more common among married individuals & those living in nuclear families. It was seen that the mean increase S. cholesterol found was more with risperdone (190.32) & olanzapine (204.60) when compared with lurasidone (161.64). Side-effect profiles seen with CSFQ & AIMS scale showed not much change in improvement with sexual dysfunction. However, in other studies it was found that lurasidone has shown to moderately improve this side-effect.[17]

It was found that S. triglyceride levels, VLDL cholesterol & even HDL cholesterol was comparatively increased in patients taking Risperidone. However, LDL cholesterol was significantly more in olanzapine & quetiapine subjects and less in lurasidone subjects. This is inconsistence with the finding with large literature documentation which states that most widely used 2nd generation anti-psychotics (namely, olanzapine, risperidone, quetiapine)[16,18] are associated with derangement in lipid profile & increased weight. The blood fasting glucose levels were significantly raised in our study in olanzapine, risperidone & quetiapine & not much change was found with lurasidone. This finding is consistent with findings in other studies that lurasidone is associated with minimum change in weight, cholesterol & no change in glucose or triglycerides.[17]

SUMMARY & CONCLUSION

The study conducted in psychiatry outpatient department from January 2018 to September 2019 in tertiary care centre in western Uttar Pradesh. Conclusion that can be drawn from this study:

- Disease is more common in people with low socio-economic status.
- Majority of patients were found to be married & living in nuclear families.
- No significant difference found between religion, occupation or education.
- All the 4 drugs showed minimal differences in efficacy in treatment of SCZ on basis of BPRS & PANSS scoring.
- Improvement in sexual functioning of the patient was seen along all the treatment in both the sexes.
- No significant metabolic derangement was found with BMI, & ECG changes. However, changes in lipid profile & glucose levels were seen.

As compared with other studies this study correlates in terms of derangement in lipid profile, FBS, no significant changes with ECG & BMI & approx. equally efficacious as other drugs. Unlike other studies there was no influence on sexual dysfunction.

REFERENCES

1. Kaplan & Sadock's, Comprehensive Textbook of Psychiatry, tenth edition, Volume I/II; Chapter 12.
2. Paul Harrison, Philip Cowen et al; Shorter Oxford Textbook of Psychiatry, seventh edition; Chapter 11.
3. Kinon BJ, Basson BR, Gilmore JA et al. Strategies for switching from conventional antipsychotic drugs or risperidone to olanzapine. J Clin Psychiatry 2000; 61: 833–40.
4. Millan MJ. Improving the treatment of schizophrenia: focus on serotonin (5-HT)1A receptors. J Pharmacol ExpTher 2000; 295:853–61.
5.https://psychopharmacologyinstitute.com/publication/lurasidone-indications-fda-approved-uses-2148.
6.https://cdsco.gov.in/opencms/system/modules/CDSCO.WEB/elements/download_file-division.jsp?num_id=MTUxOQ==
7. Ishibashi, T. Horisawa et al. Pharmacological profile of lurasidone, a novel antipsychotic agent with potent with 5-HT7 & 5-HT1A receptor activity. J. Pharmacol. Exp. Ther. 2010; 334(1),171-81.
8. Weiden PJ, Citrome L, McEvoy JP, et al. Effectiveness of lurasidone in schizophrenia or schizoaffective patients switched from other antipsy¬chotics: a 6-month, open-label, extension study. CNS Spectr. 2014;19(04):330–39.
9. L Citrome, Cucchiaro J et al. Long-term safety and toler¬ability of lurasidone in schizophrenia: a 12-month, double-blind, active-controlled study. Int Clin Psychopharmacol. 2012;27(3):165–76.
10. Kay SR, Fiszbein A, Opler LA. The positive and negative syndrome scale (PANSS) for schizophrenia. Schizophr Bull. 1987; 13 (2): 261–76. doi:10.1093/schbul/13.2.261. PMID 3616518
11. Overall JE, Gorham DR. The brief psychiatric rating scale. Psychological Reports 1962; 10: 799-812.
12. Reproduced from Guy W. ECDEU Assessment Manual for Psychopharmacology: Revised (DHEW publication number ADM 76-338). Rockville, MD, US Department of Health, Education and Welfare, Public Health Service, Alcohol, Drug Abuse and Mental Health Administration, NIMH Psychopharmacology Research Branch, Division of Extramural Research Programs, 1976: 534–7.
13. Clayton AH, McGarvey EL, Clavet GJ. The Changes in Sexual Functioning Questionnaire (CSFQ): development, reliability, and validity, Psychopharmacology bulletin. 1997 Jan 1;33(4):731.
14. Meneses A Effects of the 5-HT7 receptor antagonists SB-269970 and DR 4004 in autoshaping Pavlovian/instrumental learning task. Behav Brain Res 2007; 155:275– 82.
15. Marder, S.R., Meibach, R.C., 1994. Risperidone in the treatment of schizophrenia. Am. J. Psychiatry 151, 825–35.
16. Nakamura, M., Ogasa, M., Guarino, J., Phillips, D., Severs, J., Cucchiaro, J., Loebel, A. Lurasidone in the treatment of acute schizophrenia: a double-blind, placebo controlled trial. J. Clin. Psychiatry 2009;70, 829–36.
17. Harrigan, E.P., et al. A randomized evaluation of the effects of 6 anti-psychotic agents on QTc, in the absence and presence of metabolic inhibition. J. Clin. Psychopharmacol. 2004;24,62-9.
18. Umbricht, D., Kane, J.M. Risperidone: efficacy and safety. Schizophr. Bull. 1995;21, 593–606.

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