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PROSPECTIVE OBSERVATIONAL STUDY IN A MEDICATION SAFETY EVALUATION OF ANTI-PSYCHOTICS IN SCHIZOPHRENIA

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ABSTRACT

Background: Schizophrenia is a severe form of mental illness, with a variety of positive, negative, cognitive and mood symptoms, anti- psychotic medications can have dramatic impact in patient life leads to many side effects. The purpose of this study was to observe Side Effects (weight gain, Blood Pressure, Sedation and Extra Pyramidal Side Effects) of Anti-Psychotics (Chlorpromazine, Haloperidol Vs Olanzapine, Risperidone). **Method:** A prospective observational study has been carried out in Jayabharath hospital, Nellore from June – December 2019 for a study period of 6 months i.e., June – December 2019. Number of patient enrolled with antipsychotics were Haloperidol (n=15), Chlorpromazine (n=15), Risperidone (n=35) and Olanzapine (n=25), a total of (n=90) patients. **Results:** Olanzapine resulted in 4kg and risperidone of 2kg increased weight were seen. Extra pyramidal side effects observed with haloperidol and risperidone were dystonia, tremors and rabbit syndrome. A sedation profile observed with chlorpromazine (80%), olanzapine (36%) and their incidence of sedation was compared, which shows that chlorpromazine caused more sedation than olanzapine in case of schizophrenic patients. **Conclusion:** Prominent Side effects were observed with haloperidol, and risperidone compared to olanzapine, and chlorpromazine. Weight gain was much observed with olanzapine than risperidone. Sedation was more with chlorpromazine than olanzapine and extra pyramidal side effects were predominantly found with haloperidol, whereas the metabolic side effects predominated the atypical antipsychotics.

KEYWORDS: schizophrenia, anti-psychotics, weight gain, sedation, extra pyramidal side effects.

INTRODUCTION

Schizophrenia is a group of psychotic disorders that interfere with thinking and mental or emotional responsiveness.[1] Antipsychotics have long been established as a necessary part of pharmacotherapeutic interventions in both acute and long-term treatment of schizophrenia[2-5] and have become the cornerstone of treatment for schizophrenia. The first-generation "conventional" antipsychotic drugs are high-affinity antagonists of dopamine D2 receptors that are most effective against psychotic symptoms but have high rates of neurologic side effects, such as extra pyramidal signs.[6] The introduction of second-generation, or "atypical," antipsychotic drugs promised enhanced safety.[7] Although studies indicated that the atypical drugs are similar to the conventional drugs in reducing psychotic symptoms and produce few neurologic effects.[7-11] The safety advantages of the atypical drugs have been questioned because of their propensity to induce weight gain,[12] alter glucose and lipid metabolism[13,14] and they have a lower propensity than the first generation agents to cause extrapyramidal side effects.[15-19] Patients with schizophrenia often suffer from sleep disturbances such as excessive sleeping and insomnia. Common medications for schizophrenia can have a sedative effect on patients. Not all antipsychotic medications have the same sedative effect, which is related to dosage and affinity for histamine H1 receptors.[20-23] Diagnosis and screening of blood pressure should be done because orthostatic hypotension can occur with all antipsychotic medications.[24]

The main objective of our study is to observe the side effects of Anti-Psychotics in patients attending the Psychiatry department and to compare and analyze the side effects of anti- psychotic drugs (chlorpromazine, haloperidol vs olanzapine, risperidone) used in the management of schizophrenia

MATERIALS AND METHODS

A Non-experimental prospective observational study was conducted over a period 6 months from June to December of 2019 in the department of general medicine, Jayabharath hospital, a tertiary care hospital, a

500 bedded tertiary care teaching hospital, Nellore, Andhra Pradesh. Ethical approval was obtained from the institution before the initiation of the study. Patient was informed about the purpose of the study and written consent was taken prior to their participation in the study. Patient consent form was prepared in the vernacular language, Telugu. Required data of the patient was collected from the patient case sheet. Patient was observed for the ADR, response to treatment and counseled accordingly.

Inclusion criteria

- Both inpatients and outpatients diagnosed with Schizophrenia of the age group of 25-40 years.
- Patients who are willing to participate.

Exclusion criteria

- Patients with relevant co-morbidity.
- Patients who are not willing to participate in the study.
- Critically ill patients who cannot participate in the study.

RESULTS

A total 90 patients (excluding 12 dropouts) of 25-35 years age group were included in our study, among them higher prevalence were observed in females n=55 (61%) than males n=35 (39%). Drug prescribing pattern for anti-psychotics were 33.33% in typical and 66.66% in atypical anti-psychotics. Number of patient enrolled with typical antipsychotics such as haloperidol (22) and chlorpromazine (16) and total number of patients with atypical antipsychotics are 38. Similarly subjects enrolled in Atypical antipsychotics are Risperidone (28) and Olanzapine (26), a total of 64 patients these results.

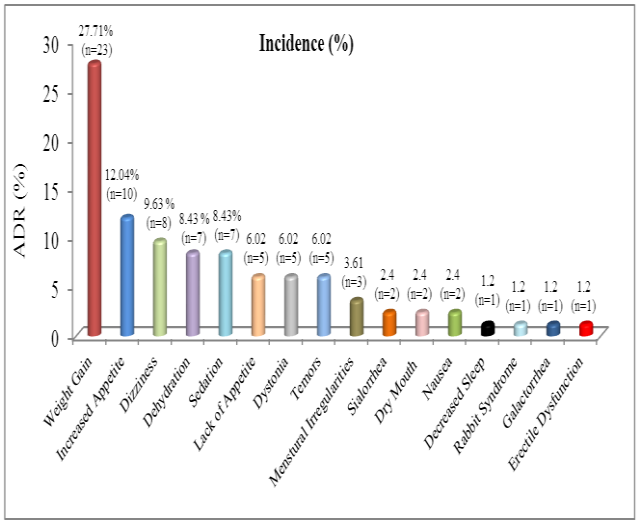


Fig 1: Adverse Drug Reactions of Anti-Psychotic Drugs.

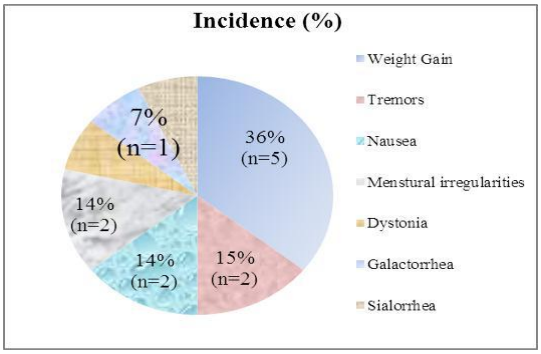
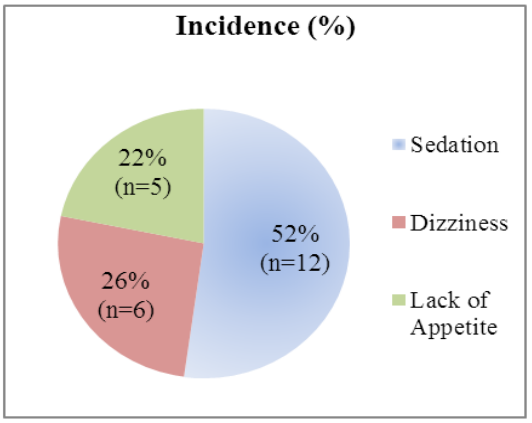


Fig 2: Side Effects of Haloperidol.



Effects Fig 3: Side of Chlorpromazine.

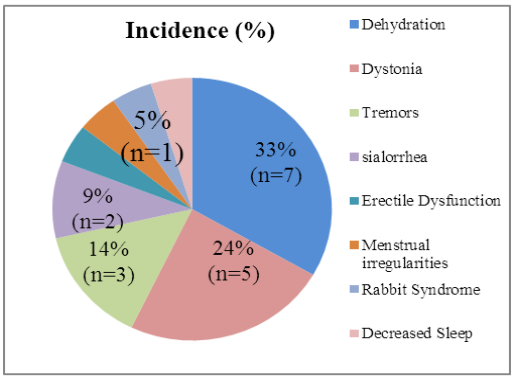


Fig 4: Side Effects of Risperidone.

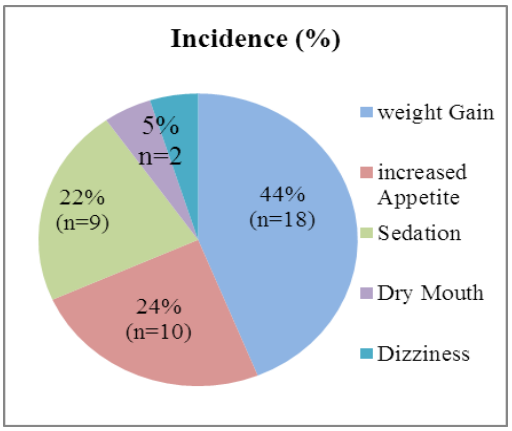


Fig 5: Side Effects of Olanzapine.

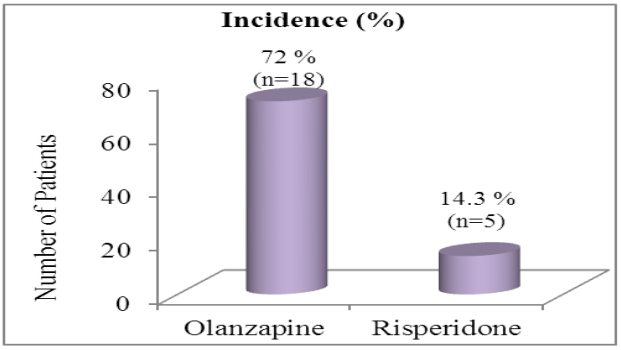


Fig 6: Comparison of Incidence of Weight Gain caused by Olanzapine and Risperidone.

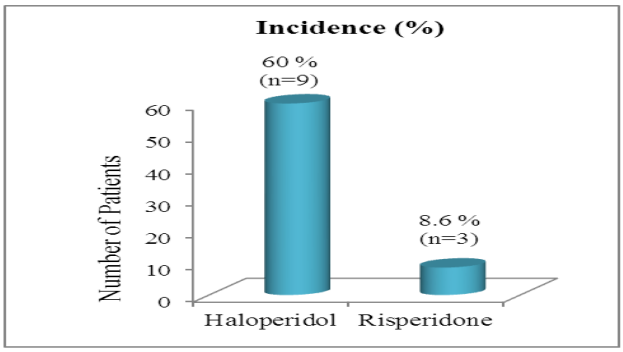


Fig 7: Comparison of Extra Pyramidal Side Effects Caused by Haloperidol and Risperidone.

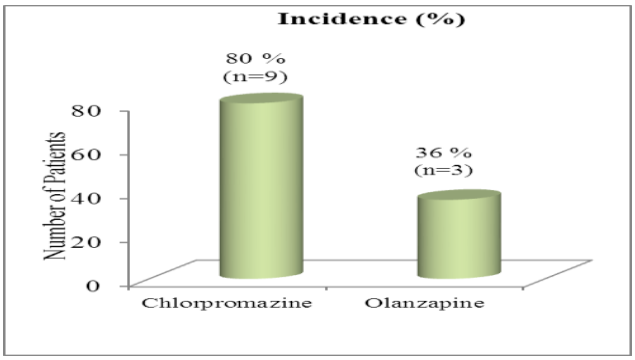


Fig 8: Comparison of Sedation Caused By Chlorpromazine and Olanzapine.

DISCUSSION

We found that many of adverse drug reaction are observed with antipsychotic medications such as weight gain, increased appetite, dizziness, dehydration, sedation, lack of appetite, dystonia, tremors, menstrual irregularities, sialorrhea, nausea, decreased sleep, dry mouth, galactorrhea, erectile dysfunction and rabbit syndrome are drawn in fig no.1. In a study there was no evidence for differences in efficacy between atypical and typical antipsychotics, but there was a clear difference in the side-effect profile.[25] Similarly we also found the difference in side effects.

Side effects observed with Haloperidol were dehydration (33%), dystonia (24%), tremors (14%), sialorrhea (9%), erectile dysfunction (5%); for Chlorpromazine, the side effects observed were sedation (52%), dizziness (26%), lack of appetite (22%); these results are drawn in chart no.2, 3 respectively. Similarly for risperidone, Weight gain (36%), tremors (15%), nausea (14%), menstrual irregularities (14%), dystonia (7%), galactorrhea (7%), sialorrhea (7%); for olanzapine, weight gain (44%), increased appetite (24%), sedation (22%), dry mouth (5%), dizziness (5%) were observed and these results were put forth in fig no.4,5 accordingly.

Both conventional and newer antipsychotics were associated with weight gain.[26] We found that conventional antipsychotics associated with less significant weight gain, than compared with that of the newer antipsychotics.

Weight gain of more than 5 kg within 2 months is an adverse event of antipsychotics acting on the metabolic system in many patients.[27] Another study says that olanzapine caused more weight gain than risperidone.[28] Along with that another possibility observed that olanzapine resulted in 4kg and risperidone of 2kg increased weight and comparison of incidence of weight gain by olanzapine (72%) and risperidone (14.3%) are drawn in fig no.6.

Extra pyramidal side effects are more likely to occur with typical antipsychotics, such as haloperidol.[29] Along with that we also found that extra pyramidal side effects occurs with the atypical antipsychotics also. In our study, we observed that haloperidol and risperidone caused dystonia, tremors, rabbit syndrome and the incidence of extra pyramidal side effects i.e., 60% for haloperidol and 8.6% incidence for risperidone were drawn in fig no.7.

Orthostatic hypotension can occur with all antipsychotic medications,[29] but in our study we found less significant variation in blood pressure.

Atypical antipsychotics often cause less sedation than do conventional antipsychotics like risperidone and olanzapine.[30] Similarly sedation profile observed with chlorpromazine (80%), olanzapine (36%) and their incidence was compared, which shows that chlorpromazine caused more sedation than olanzapine in case of schizophrenic patients.

CONCLUSION

We conclude that, prominent side effects were observed with haloperidol, and risperidone compared to olanzapine, and chlorpromazine. Anti-psychotic drugs had no influence on blood pressure changes in our study. Weight gain was much observed with olanzapine than risperidone. Sedation was more with chlorpromazine than olanzapine and extra pyramidal side effects were predominantly found with haloperidol, whereas the metabolic side effects predominated the atypical antipsychotics. Adverse effects can be avoided through educating the patient.

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