

A Study of an Antipsychotic Prescription Pattern of Patients with Schizophrenia in a Developing Country

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ABSTRACT

Background: Though there are several recommended guidelines for treating schizophrenia, in routine clinical practice, these are not followed. **Aim:** To conduct an audit of the prescription pattern of antipsychotic drugs in patients with schizophrenia, in a tertiary care centre in India, during a period of 1 year and compare it with Maudsley guidelines and Clinical practice guidelines for Psychiatrists in India (IPS guidelines). **Materials and Methods:** Data were collected from the case records, compiled, and analyzed. The concordance or discordance with Maudsley and IPS guidelines were studied. **Results:** The demographic variables of the patients and the prescription pattern of drugs were analyzed. The correlations between supramaximal and sub-threshold dosage of drugs to the gender, age, duration of illness, and combination of drugs were examined. **Conclusions:** Polypharmacy of antipsychotics is common. 31% of patients were on combination of typical and atypical antipsychotics. 4% of patients were receiving supramaximal dose of antipsychotics and all of them were on combination ($P = <0.03$, χ^2). 24% of patients were on sub-threshold doses. 83% were not on anticholinergic drugs.

Key words: Antipsychotics, prescription, schizophrenia

INTRODUCTION

Several guidelines exist for rational prescription for schizophrenia, including an Indian guideline.^[1] Nevertheless, prescribing in real-world settings often differs from suggested guidelines.^[2-4] Polypharmacy, for example, is strongly discouraged in treatment guidelines, but typically found in 25% of out-patient attendees.^[5] High-dose antipsychotic use is not supported by evidence of clinical efficacy and is linked to adverse effects, including a risk of sudden death.^[6] Anticholinergic agents alleviate neuroleptic-induced extrapyramidal side-effects, but have adverse cognitive effects, alter absorption of other oral medications and have abuse potential.^[7] Short-term, as-required use prevents extrapyramidal side-effects in the vast majority of patients.^[8,9] but routine use is nonetheless commonplace.^[10]

The Department of Psychiatry, Medical College,

Thrissur, was started in the year 1983. It is a tertiary care centre, catering to the needs of the people living in Thrissur district and the neighboring district of Palakkad in Kerala. Kerala is a state in the south western tip of India, which is densely populated, with a high literacy rate and is far ahead of other Indian states as regards all parameters of physical health; in fact comparable to developed countries.

The department, recently accredited as a post-graduate training centre, has daily out-patient and in-patient services, apart from specialty psychiatry services and consultation liaison services. The number of psychiatric in-patients during the year 2007 was 656.

The aim was to conduct an audit of the prescription pattern of antipsychotic drugs in patients with schizophrenia admitted in Psychiatry ward, in Thrissur Medical College Hospital, during a period of 1 year from January 2007 to December 2007 and to compare it with

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Maudsley guidelines^[11] and Clinical practice guidelines for Psychiatrists in India (IPS guideline)

MATERIALS AND METHODS

The case charts of those patients who were admitted in Psychiatry ward during the period January to December 2007 with a diagnosis of schizophrenia were collected from the Medical Records library. The diagnosis was confirmed from the case records. The ICD 10 guidelines had been used in arriving at the diagnosis.

The data were then compiled and analyzed. The concordance or discordance with Maudsley and IPS guidelines were noted and presented in Tables 1–6. The dose of antipsychotic drugs was recorded as a percentage of the maximum recommended British national formulary (BNF) dosage- Olanzapine 20 mg = 100%. In the case of polypharmacy, the total daily dose was calculated as the sum of the percentages of the maximum BNF doses prescribed.

Doses or sum of doses above 100% of the maximum BNF recommendations were classified as supra-maximal dose and those below 300 mg chlorpromazine equivalent were classified as sub-minimal dose.

RESULTS

There were a total 29 patients who had received in patient treatment for schizophrenia, out of a total of 656 admissions, during a period of 1 year, i.e. schizophrenia patients constituted only 4% of the admissions.

Seventeen patients (59%) were receiving atypical antipsychotics and only 3 [10%] were receiving typical drugs. All the patients on typical antipsychotics were receiving more than one antipsychotic, whereas among the patients on atypical, only one [3%] was on combination. 9 [31%] were on a combination of atypical

and typical antipsychotics. Only one patient (3%) had received depot preparation (fluphenazine) and none received ECT. Documentation regarding the necessity of use of polypharmacy and response to antipsychotic drug treatment were not complete.

Four patients (13.79%) were receiving supramaximal doses (i.e. doses above 100%) and 7 patients (24.13%) were receiving subminimal doses (i.e. doses less than the equivalent of 300 mg of chlorpromazine). Analyses of the relationship between the supramaximal dose of drugs, sex, age, duration of illness, and the combination of drugs were attempted. The chi-square test was used. It was found that those patients receiving supramaximal dose of drugs were the ones who were receiving the combination of atypical and typical drugs. The result was statistically significant ($P < 0.03$). There was no statistically significant relationship between the use of supramaximal dose of drugs and age, gender, and duration of illness.

No statistically significant relationship was observed between the use of sub threshold dose of drugs and age, gender, and duration.

Two of the patients had diabetes; one of them was on risperidone and one of them was on clozapine. Whether they developed diabetes after starting atypical antipsychotics or before and whether they had family history of diabetes is not clear from the case records.

A total of five patients (17%) received anticholinergic drugs routinely. Two of them were on typical antipsychotics. Two of them were on atypical antipsychotics and one of them was on combination of atypical and typical antipsychotic drugs.

Two out of a total of 17 patients (12%) on atypical antipsychotics received anticholinergic drugs. Two out

Table 1: Age distribution of patients

Age	N (%)
<40	26 (90)
>40	3 (10)

90% of patients were below the age of 40 years and only 10% of patients were above 40 years of age

Table 3: Duration of illness

Duration of illness	N (%)
<2yrs	3 (10)
>2 yrs	26 (90)
Total	29 (100)

90% of patients had duration of illness of more than 2 years

Table 2: Gender distribution of patients with schizophrenia

Sex	N (%)
M	20 (69)
F	9 (31)
Total	29 (100)

There were 69% male patients and 31% female patients

Table 4: Drug combinations

Drug combinations	N (%)
One typical drug	0 (0)
Combination of typical alone	3 (10)
One atypical drug	16 (56)
More than one atypical	1 (3)
Combination of typical and atypical	9 (31)
Total	29 (100)

Table 5: Routine use of anticholinergic drugs

Drugs with which anticholinergics were used	N
Typicals alone	2 (7)
Atypicals alone	2 (7)
Combination of typical and atypical	1 (3)
Total	5 (17)

Parenthesis indicate percentages

of a total of three patients on typical antipsychotic drugs (67%) received anticholinergic drugs. One out of nine patients on combination of atypical and typical drugs (11%) received anticholinergic drugs.

The prescription pattern was compared with that of Maudsley guidelines and Clinical practice guidelines for Psychiatrists in India (IPS guideline), with reference to six parameters, namely dose of antipsychotic drugs used, use of single/combination of antipsychotics, routine use of anticholinergic drugs, antipsychotic monitoring, and use of psychosocial interventions. The concordance regarding the use of single antipsychotic drug and the dose of antipsychotics was 56% and 62%, respectively. 83% of patients were concordant to both guidelines regarding the use of anticholinergic drugs. None of the patients were monitored as per guidelines though it was done partially for 25 (86%). The structured psychosocial interventions were given only to 20% of patients.

DISCUSSION

Out of a total of 656 admissions during the year 2007, only 4% patients had schizophrenia. The proximity of a separate government mental hospital could be one of the reasons. Patients with chronic schizophrenia and excited patients could be seeking treatment from the mental health centre. The city of Thrissur has about 30 practicing psychiatrists. Many of the patients may be seen by private psychiatrists. Many may be taken care of by the family and stigma may be preventing many from seeking care from a general hospital.

Regarding the pattern of use of antipsychotic drugs, it was found that all the patients who had exceeded the maximum recommended doses were receiving combination of atypical and typical antipsychotics and it was statistically significant. The case records did not indicate that the maximum permitted dose was exceeded. This represents a cause of covert high dose prescribing wherein clinicians lose sight of total additive dose when they give more than one type of drug at the same time.^[12] The largest audit of prescribing for in patients have also found that in a quarter of patients, antipsychotics were prescribed in high doses and the high dose prescription was due to polypharmacy.^[3] Another multicentre survey in UK has also found that

Table 6: Concordance with guideline

Criteria	Maudsley		IPS guideline	
	Concordant	Not concordant	Concordant	Not concordant
1. Dose of antipsychotic drug	18 (62)	11 (38)	18 (62)	11 (38)
2. Use of single antipsychotic drug	16 (56)	13 (44)	16 (56)	13 (44)
4. Use of anticholinergic drugs	24 (83)	5 (17)	24 (83)	5 (17)
5. Antipsychotic monitoring	Nil	29 (100)	Nil	29 (100)
(a) Complete	25 (86)	4 (14)	25 (86)	4 (14)
(b) Partial				
6. Psychosocial interventions given (as recorded)	6 (20)	23 (80)	6 (20)	23 (80)

Parenthesis indicate percentages

antipsychotic polypharmacy and prescription of high dose antipsychotics is wide spread.^[13]

31% of patients were on combination of typical and atypical antipsychotics. Stahl has remarked that 25% of out-patient attendees receive polypharmacy. The Maudsley guidelines and the IPS guidelines do not recommend combination of atypical and typical antipsychotics. In none of the patients who were prescribed supramaximal dose of antipsychotics ECG was done. Polypharmacy of antipsychotics also has clear adverse consequences. Most seriously, it has been suggested that polypharmacy is associated with early death.^[14] In addition, the co-prescription of typical antipsychotics with atypical drugs has been shown to increase the frequency of acute extrapyramidal side-effects to levels expected when typicals are used alone.^[15,16] Presumably the risks of tardive dyskinesia and hyperprolactinaemia are similarly increased. Apart from this, there is probably a very important risk of adverse interaction when antipsychotics are prescribed together, either through inhibition of metabolism or through summation of toxic effects (such as QT prolongation). None of the patients on antipsychotic drugs were monitored as per the recommended guidelines. This makes polypharmacy and high dose prescribing more dangerous.

The findings regarding polypharmacy and high dose prescription are in line with other studies. This makes us reflect whether it is really difficult for real world practice to meet the stringent evidence based guidelines and warrants more research in this area.

24% of patients were receiving sub threshold doses, compared to the BNF. This could be due to the reason

that clinician might have preferred to stop hiking the dose when response is established and many of the Indian population may require less than the minimum sectional study, we did not examine the response to drugs.

Limitations

The small sample size of our audit is a limitation. Details of patients' illness, treatment history, indication for prescribing high dose combination, and the response to drugs were not determined.

CONCLUSIONS

4% of patients had received supramaximal dose of antipsychotics. They were all on combination of typical and atypical antipsychotics. The results are statistically significant ($P = < 0.03$, χ^2). Combinations of drugs lead to exceeding of the maximum permitted dose.

31% of patients were on combination of typical and atypical antipsychotics. Co-prescription is common, in spite of the insistence of the guidelines to the contrary.

24% of patients were receiving sub-threshold doses. When compared to Maudsley and national guidelines, the maximum concordance with the guidelines was regarding the use of anticholinergic drugs. 83% of patients were not on routine anticholinergic drugs. None of the patients were monitored as per the guidelines.

Future directions

Studies with more sample size are needed. When prescribing combination it should be made mandatory to record the respective percentages of the maximum permitted dose to prevent covert prescription of supramaximal doses with its attendant complications. In those patients who are given combination of antipsychotics and high dose of antipsychotics adequate patient monitoring should be made mandatory to avoid dangerous side effects, including sudden death.

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