

Adverse Drug Reaction Monitoring of Antipsychotic Drugs and Mood Stabilizers in a Teaching Hospital

Swetha Munoli¹, Soumya B Patil^{2*}

¹Department of Pharmacology, ESIC-MC & PGIMSR, Bangalore, Karnataka, INDIA.

²Department of Pharmacology, Navodaya Medical College, Raichur, Karnataka, INDIA.

ABSTRACT

Background: Antipsychotics and mood stabilizers are associated with adverse effects which can affect the compliance and course of treatment in mental disorders. The present study was therefore undertaken to monitor the adverse drug reactions (ADRs) of the antipsychotics and mood stabilizers in the psychiatric outpatient unit of our hospital. **Methods:** Study was conducted from December 2011 to November 2012, the patients on antipsychotic drugs from psychiatry outpatient department (OPD) of Raichur Institute of Medical Sciences were considered for analysis. The patients were diagnosed by consultant psychiatrist. Data was collected in standard questionnaire format. All patients diagnosed with psychiatric disorder as per ICD 10 criteria and receiving treatment with antipsychotic or mood stabilizer were included. Assessment of causality and severity of recorded adverse events was done using WHO assessment scale and modified Siegel and Hartwig Scale respectively. **Results:** 45 ADRs were recorded among 778 patients. Extra pyramidal symptoms, anticholinergic side effects and Weight gain were the most common ADRs. Risperidone, chlorpromazine and olanzapine were the drugs causing maximum ADRs. Assessment of causality and severity of recorded adverse events showed possible to probable and mild to moderately severe respectively. **Conclusion:** Extrapyramidal symptoms were most common ADRs in our study followed by anticholinergic side effects. Risperidone was most commonly prescribed drug followed by chlorpromazine. Risperidone and chlorpromazine accounted for most of ADRs. Assessment of causality of recorded adverse events showed no certain cause and Assessment of severity of recorded adverse events showed no severe cases.

Key words: Antipsychotics, Olanzapine, Risperidone, Extrapyramidal Symptoms, Lithium, Haloperidol.

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INTRODUCTION

According to WHO, adverse drug reaction is defined as "Any response to a drug which is noxious and unintended, and which occurs at doses normally used in man for prophylaxis, diagnosis, or therapy of disease, or for the modification of physiological function"^[1] Adverse drug reactions (ADRs) are known to be the significant cause of morbidity and mortality both inpatients and outpatients settings.^[2] The overall incidence of serious and fatal ADRs among hospitalized patients was found to be 6.7% and 0.32%, respectively.^[3] While in outpatient settings, the incidence of ADRs ranges from 5% to 35%.^[4] ADRs are recognized to be one the significant cause of hospital admissions and the incidence varied from 0.2% to 41.3%.^[5]

Pharmacovigilance, the science and activities related to the detection, assessment, understanding and prevention of adverse effects or any drug related problem, is highly

essential in India, where there is lack of adequate safety related data for drugs in general and psychotropic agents in particular. India seems to rate below 1% in ADR reporting, as against the world rate of 5%.^[6]

Psychotropic drugs are plentiful in number and their use is increasing day by day. These drugs are capable of causing a

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*Correspondence : Dr Soumya B Patil,

Department of Pharmacology, Navodaya Medical College, Raichur, Karnataka, INDIA

E-mail: sou_doc@yahoo.co.in

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number of adverse drug reactions (ADR),^[7,8] some of which may be fatal.^[9] ADRs associated with psychotropic drugs can lead to noncompliance, and at times discontinuation of therapy.^[10] Pharmacovigilance in psychiatry units can play a vital role in detecting ADRs and alerting physicians to the possibility and circumstances of such events, thereby protecting the user population from avoidable harm.^[11] Hence we conducted the study with the objectives to do surveillance and detect incidence of adverse drug reactions (ADRs) in outpatient department of Psychiatry, to access and analyze the ADRs according to their demographic distribution, reporting and presentations and to do causality and severity analysis of ADRs.

METHODS

A longitudinal observational study was conducted in patients attending outpatient department of psychiatry at Raichur Institute of Medical Sciences. The study was approved by institutional ethics committee.

Study period

December 2011 to November 2012.

Inclusion criteria

Patient visiting the psychiatry OPD and receiving antipsychotic drugs or mood stabilizers with a diagnosis of psychiatric illness as per ICD 10 criteria and patients above age of 12 years

Exclusion criteria

Diagnosed cases of mental retardation and dementia and patients on stimulant drugs.

Patient information were recorded in CDSCO Adverse Drug Reaction reporting form, Assessment of causality

and severity was done using WHO assessment scale and modified Siegel and Hart wig Scale respectively.

RESULTS

Incidence of ADRs was 5.2%, 45 ADRs were recorded among 41 cases, 778 patients were screened, among 41 cases 23 were male and 18 were female. Extra pyramidal symptoms (15), anticholinergic side effects (10) and Weight gain (8) were the most common ADRs. Risperidone (22), chlorpromazine (9) and olanzapine (7) were the drugs causing maximum ADRs. Assessment of causality and

Table 1: Incidence rate of adverse effects with various anti psychotic drugs

Name of drug	Total no of patients	Total cases of ADRs	Incidence rate (%)
Risperidone	372	22	5.91
Chlorpromazine	227	9	3.96
Haloperidol	54	1	1.85
Olanzapine	55	7	12.72
Clozapine	39	1	2.56
Lithium	31	1	3.22

Table 2: Gender wise distribution of ADR cases.

Drug	Male	Female	Total
Antipsychotic			
Atypical	14	16	30
Typical	8	2	10
Mood stabilizer	1	0	1
Total	23	18	41

Table 3: Age wise distribution of ADR cases

Drug	12-<21	21-<41	41-<61	>61	Total
Antipsychotic					
Atypical	3	24	1	2	30
Typical	0	7	3	0	10
Mood stabilizer	0	1	0	0	1
Total	3	32	4	2	41

Table 4: Nature of ADRs

Drug	Drugs	No of ADRs	Adverse reactions
Antipsychotic	Typical	Haloperidol(1) Chlorpromazine(9)	10 Excessive sedation(1),EPS(3), dryness of mouth(4), constipation(2)
	Atypical	Risperidone(22) Olanzapine(9) Clozapine(3)	34 Excessive sedation(4), mental confusion(1), subtle imbalance(1), EPS(12), dryness of mouth(4), HS(1), WG(8), MI(3)
Mood stabilizer	Lithium(1)	1	Tremors(1)
Total		45	

EPS: extrapyramidal symptoms, HS: hypersalivation, WG: weight gain, MI: menstrual Irregularity.

Table 5: ADR of different system

Drug	EPS	CNS	ACSE	HS	WG	MI	TR	TOTAL	
Antipsychotic	Atypical	TR(5) TD(3) AKT(1) DIP(3)	ES(4) MC(1) SI(1)	DM(4)	1	8	3	0	34
	Typical	TR(2) AKT(1)	ES(1)	DM(4) CTP(2)	0	0	0	0	10
Mood stabilizer	0	0	0	0	0	0	1	1	
Total	15	7	10	1	8	3	1	45	

EPS-Extrapyramidal Symptoms, TR-tremors, TD-tardive dyskinesia, AKT akathisia, DIP-drug induced Parkinsonism, ES-Excessive sedation, MC-mental confusion, SI-subtle imbalance, ACSE- anticholinergic side effects, CTP-constipation, DM-dryness of mouth, HS-hypersalivation, WG-weight gain, MI-menstrual irregularity

Table 6: Causality assessment of ADRs (WHO scale)

Drug	Certain	Probable	Possible	Total	
Antipsychotic	Atypical	0	12	18	30
	Typical	0	3	7	10
Mood stabilizer	0	0	1	1	
Total	0	15	26	41	

Table 7: Severity of ADR cases

Drug	Mild	Moderate	Severe	Total	
Antipsychotic	Atypical	18	12	0	30
	Typical	7	3	0	10
Mood stabilizer	1	0	0	1	
Total	26	15	0	41	

severity of recorded adverse events showed possible to probable and mild to moderate severity respectively (Table 1-7).

DISCUSSION

The overall incidence rate of ADRs in our study was found to be 5.2%. Many international studies have reported an overall incidence rate of 5.01–21.45% in psychiatry OPDs.^[12-16] There were more male patients who developed ADRs, this is in contrast to the findings of previous studies^[17,18] and similar to a study by Sengupta *et al*, and Jain, *et al* where more males developed ADRs than females.^[12-19] 32 out of these 41 patients belonged to 21-40 years age group. Previous studies have quoted mean age of patients with ADRs within the range observed in our study.^[12,19] The most common antipsychotic drugs associated with ADR was risperidone followed by chlorpromazine and olanzapine. These drugs were most commonly prescribed in our psychiatry unit. A similar study done in IPGMER, Kolkata IN 2011 showed olanzapine as commonest drug causing ADR.^[12] Among mood stabilizers lithium was more commonly prescribed unlike other study where valproate was more commonly prescribed drug.^[21] Extrapyramidal Symptoms, anticholinergic side effects and weight gain were most common ADRs observed in our study in decreasing order of their occurrence. Extrapyramidal Symptoms was also seen with second generation antipsychotics in our study as they were prescribed more commonly in our psychiatry OPD. Sengupta *et al* had

also found that neurological ADRs (tremors) were the most common ADRs followed by metabolic (weight gain) and gastrointestinal effects (constipation).^[12] Causality assessment was done and no “certain” causes were seen since in cases where dechallenge was done, rechallenge was not attempted with the offending drug. This is in contrast to a Brazilian study where 23 cases were found to be “definite” after rechallenge was attempted.^[20] All ADRs reported were of mild to moderate severity. Study in India by Jose J *et al*^[22] showed mild and moderate reactions accounted for 50.5% and 43.9% respectively. Grohmann R *et al*^[23] conducted study in Germany in 2004 and showed that severe ADRs due to psychopharmacological agents occurred in 1.4% of exposed patients. The difference in the severity of ADRs might be due to difference in prescribing preferences at the different hospitals and there may be difference in the demographic characteristics of patients.

CONCLUSION

Extrapyramidal symptoms were most common ADRs in our study followed by anticholinergic side effects. Risperidone was most commonly prescribed drug followed by chlorpromazine. Risperidone and chlorpromazine accounted for most of ADRs. Assessment of causality of recorded adverse events showed no certain cause and Assessment of severity of recorded adverse events showed no severe cases.

CONFLICT OF INTEREST

Nil

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