Assessment and analysis of adverse drug reactions in outpatient department of mental hospital of a tertiary care teaching institute of central India

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Abstract

Objective: To monitor and analyze the adverse drug reactions (ADRs) in outpatient department of mental hospital of a tertiary care teaching institute of central India. To assess the causality between drug and adverse reaction using WHO-UMC scale.

Method: A total of 209 adverse drug reactions were recorded in ICSR form obtained from CDSCO website in a period of 6 month from December 2016 to May 2017 in outpatient –department of mental hospital. Causality was assessed according to WHO-UMC causality scale.

Result and Conclusion: Among 209 ADRs recorded 2 ADRs were excluded from further analysis because these were belonging to unlikely category of WHO-UMC causality scale. In this analysis 48.32% ADRs were certain, 32.05% ADRs were probable and 18.66% ADRs were possible. In this analysis 57% cases of ADRs were belonging to male while 43% cases were belonging to female .The maximum ADRs were reported in 21-30 years of age group (35.2%) followed by 31-40 years of age group (27%). The antipsychotics were responsible for maximum ADRs (71.02%), antidepressants were causing 12.07% of ADRs, antiepileptic were causing 14.5% of ADRs, ant manic drugs (lithium) were responsible for 2.4% cases of ADRs. CNS is most commonly affected system (44.92%), followed by metabolic side effects (37.68%).Olanzapine was the most common offending drug and weight gain was the commonest adverse drug reaction.

Keywords: Adverse drug reactions (ADRs), Psychotropic drugs, Analysis, CDSCO, Weight gain, Olanzapine

Introduction

There are numerous psychotropic drugs which are being increasingly used.(1) Among psychotropic drugs ,antipsychotic agents have revolutionized the treatment of many psychiatric disorder in last six decades.(2) Though these medications are associated with serious morbidity and mortality,(3),their use cannot be avoided. Adverse drug reactions (ADRs) associated with psychotropic drugs often lead to poor compliance and discontinuation of therapy.(4) If these adverse reactions are detected timely and managed properly then it is easy to improve patient compliance as well as their quality of life.(5,6) In India pharmacovigilance activities are still in nascent stage ,so there is a need to collect more ADR data to take appropriate regulatory decision. This analysis is a small part of pharmacovigilance activity in outpatient department of mental hospital of tertiary care teaching institute.

Material and Method

This is an analysis of data recorded during ADR monitoring in outpatient department of mental hospital of tertiary care teaching institute of Indore (M.P.).A total of 209 ADRs were recorded by postgraduate student of Pharmacology department under guidance of senior consultant of psychiatry department over a period of 6 month from December 2016 to May 2017.The ADRs were recorded in ICSR form provided by CDSCO website. The causality analysis of ADRs was done according to WHO-UMC causality Scale.[7] The unlikely ADRs were excluded from further analysis.

Result

Table 1: Distribution of ADRs according to WHO-UMC causality scale

WHO causality Scale	No. of ADRs	Percentage
Certain	101	48.32%
Probable	67	32.05%
Possible	39	18.66%
Unlikely	2	0.95%

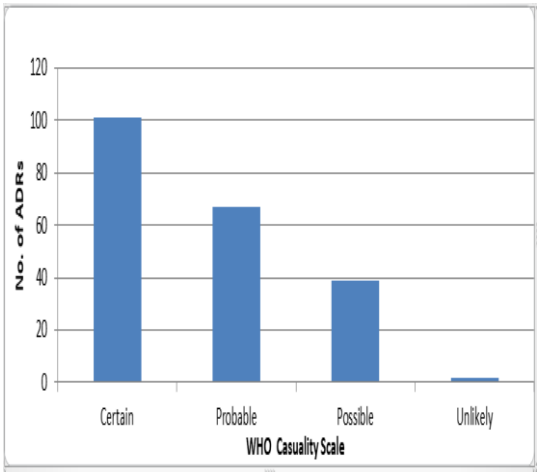

Fig. 1: Distribution of ADRs according to WHO-UMC causality scale

Inference: Table 1 / Fig. 1shows that maximum ADRs were certain (48.32%), least were unlikely (0.95%).

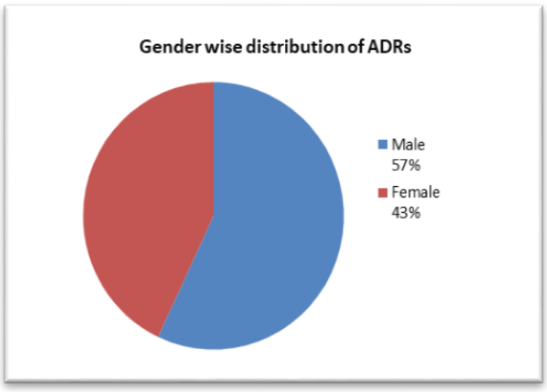

Fig. 2: Gender wise distribution of ADRs

Inference: Out of 207 ADRs reported males represented 57 %(118) and females represented 43 %(89).

Table 2: Age wise distribution of ADRs

Age in years	No. of ADRs	Percentage
<10	0	0
11-20	21	10.14%
21-30	73	35.26%
31-40	56	27%
41-50	35	17%
51-60	20	9.66%
61-70	1	0.48%
71-80	1	0.48%
Total	207	100%

Inference: The maximum ADRs were reported from the age group between 21-30 yrs followed by 31-40 yrs. While no ADR reported in age below 10 year, least no. of ADRs reported above 60 years of age.

Table 3: Category of drugs responsible for various ADRs

Drug	No. of ADRs	Percentage
Antipsychotics		71.02%
Olanzapine	105	
Risperidone	21	
Quetiapine	9	
Amisulpride	5	
Haloperidol	3	
Aripiprazole	4	
Antimanic		2.41%
Lithium	5	
Antidepressants		12.07%
Escitalopram	13	
Mirtazapine	9	
Amitriptyline	2	
Fluoxetine	1	
Antiepileptics		14.5%
Sodium valproate	29	
Oxcarbamazepine	1	
Total	207	100%

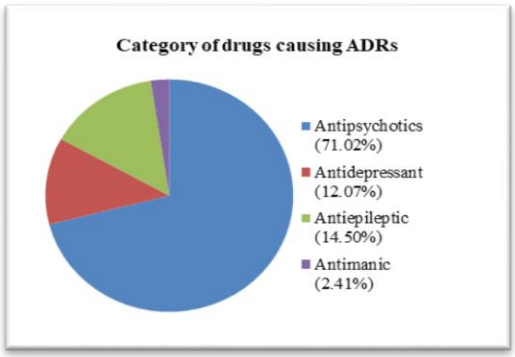

Fig. 3: Category of drugs causing ADRs

Inference: Table 3 / Fig. 3 shows that the antipsychotics were responsible for maximum ADRs (71.02%) while antidepressants were responsible for 12.07% of ADRs and antiepileptic were causing 14.5% of ADRs. Animatic drug (Lithium) was responsible in 2.41% cases.

Table 4: Organ system affected due to adverse drug reactions

System affected	Frequency of ADRs	Pattern of ADRs
Metabolic side effect	78(37.68%)	Weight gain(77), Dyslipidemia(1)
Central nervous system	93(44.92%)	Sedation (43) , Extrapyramidal side effect (13), Tremors (37)
Gastrointestinal tract	11(5.31%)	Dry mouth(1), Constipation(2), Nausea Vomiting(2), Increased salivation (2), Dyspepsia (1), Hyperacidity (3)
Psychiatric disorder	12(5.80%)	Erectile dysfunction (8), Obsession (1), Antidepressant induced mania(2), Increased dreaming (1)
Endocrinal disorder	12(5.80%)	Amenorrhoea (12)
Miscellaneous	1(0.48%)	Hair fall (1)
Total	**207 (100%)**	

Inference: Weight gain is the most common adverse drug reaction reported followed by sedation and tremors.

Discussion

The present analysis is an attempt to reveal the adverse drug profile of psychotropic drugs in out-patient department of mental hospital in Indian context. A Brazilian study, conducted in 2001, analyzed 219 notifications of suspected ADRs of Psychoactive drugs and found that anti-depressants were commonest group responsible for ADR followed by antipsychotics.[5] A Bulgarian study reported less than 1% incidence of

ADRs of individual psychotropic drug.[8] A knowledge ,attitude and practice based study conducted in Norway found that ADR can be prevented by collecting appropriate information regarding their frequency and possible risk factors.[9] In present analysis it is found that antipsychotics were most common offending drugs , this is because in our hospital setting most patients are of severe mental illness or psychotic in nature. Among antipsychotics olanzapine was frequently prescribed so it has caused maximum number of ADRs.

Regarding causality assessment 48.32% cases of ADRs were in certain category according to WHO-UMC causality scale. In this category olanzapine induced weight gain and sedation, mirtazapine induced weight gain, quetiapine induced sedation and haloperidol induced EPS were included.

Though it is documented that ADRs are slightly more common in females,[10] in present analysis male preponderance (57%) was reported.

The maximum frequency of ADRs seen in the age group of 21 to 30 years (35.26%) followed by 31to 40 years (27%). This is because majority of psychiatric disorders commence in early adulthood. Simultaneously psychiatrists take special precautions while prescribing in geriatric and pediatric patient as they are more prone to develop ADRs.

In OPD setting maximum ADRs reported were mild and self-limiting. In this pharmacovigilance activity no fatal or life threatening ADR detected, no ADR required prolonged hospitalization. Though some events like tremor were disabling but effectively managed by consultant with corrective medication (such as trihexphenidyl for EPS or propranolol) and dose titration. Weight gain (37.19%) is most frequently reported adverse effects which is a metabolic adverse effect, this is followed by sedation (20.7%) which is a CNS side effect. Overall CNS is the most common system affected (44.92%), followed by metabolic adverse effect (37.68%). Weight gain commonly observed with olanzapine, this finding is consistent with other published studies.[11] Amenorrhea is the only reported endocrinal adverse drug reaction (5.8%). Olanzapine, quetiapine, risperidone, amisulpride were most frequently prescribed atypical antipsychotic drugs while clozapine and aripiprazole were used rarely. Majority of adverse effects were seen with olanzapine (50.72%).

Limitations

Routine hematological tests, biochemical analysis, ECG monitoring of patients and measurement of blood glucose, lipid and serum prolactin were not possible.

Conclusion

In present analysis it is found that antipsychotics were most commonly responsible for adverse reactions .Though these drugs are known to reduce the morbidity and mortality from mental illness, they are often associated with adverse effects which cause distress to the patient and may lead to poor compliance and discontinuation of therapy. Thus early detection and timely management of these ADRs ensure adequate compliance, good prognosis and improved quality of life of patients.

References

1. Aronson JK. Risk perception in drug therapy. Br J ClinPharmacol. 2006;62:135–7. [PMC free article][PubMed]
2. Saltz BL, Robinson DG, Woerner MG. Recognizing and managing antipsychotic drug treatment side effects in the elderly. Prim Care Companion J Clin Psychiatry. 2004;6:14–9. [PMC free article] [PubMed
3. Carlson HE, Correll CU. Adverse effects of antipsychotics and mood stabilizers. Psychiatric times. 2010. [Last accessed on 2014 Jan 12]. Available from: http://www.psychiatrictimes.com
4. Cooper C, Bebbington P, King M, Brugha T, Meltzer H, Bhugra D, et al. Why people don't take their psychotropic drugs as prescribed: Results of the 2000 National Psychiatric Morbidity
5. Carlini EL, Nappo SA. The pharmacovigilance of psychoactive medications in Brazil. Rev Bras Psiquiatr.2003;25:200–5. [PubMed]
6. Hamer S, Haddad PM. Adverse effects of antipsychotics as outcome measures. Br J Psychiatry Suppl.2007;50:s64–70. [PubMed]
7. Uppsala: The Uppsala Monitoring Centre; 2005. The use of the WHO-UMC system for standardized case causality assessment [monograph on the Internet] Available from: http://www.who-umc.org/graphics/4409.pdf [last accessed on 2010 Mar 15]
5. Carlini EL, Nappo SA. The pharmacovigilance of psychoactive medications in Brazil. Rev Bras Psiquiatr.2003;25:200–5. [PubMed]
8 Dimitrova Z, Doma A, Petkova V, Getov I, Verkkunen E. Psychotropic drugs in Bulgaria-frequency and risk of adverse drug reactions. Boll Chim Farm.2002;141:75–9. [PubMed]
9 Castberg I, Reimers A, Sandvik P, Aamo TO, Spiqset O. Adverse drug reactions of antidepressants and antipsychotics: Experience, knowledge and attitudes among Norwegian psychiatrists. Nord J Psychiatry.2006;60:227–33. [PubMed]
10 Yonkers KA, Kando JC, Cole JO, Blumenthal S. Gender differences in pharmacokinetics and pharmacodynamics of psychotropic medication. Am J Psychiatry.1992;149:587–95. [PubMed]
11 Shah LP, Ayyar KS, Agarawal BR, Pradhan PV, Bagadia VN, Gupta KC, et al. Drug surveillance programme in psychiatry - Adverse durg reactions. Indian J Psychiatry.1983;25:229–34. [PMC free article][PubMed]