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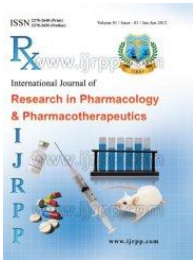

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Research article ***Open Access***

Study and analysis of different adverse effects associated with psychotropic drugs in psychiatry outpatient unit of a teaching hospital

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ABSTRACT

Adverse drug Reactions (ADRs) are one of the important causes for morbidity and mortality [1, 2]. Pharmacovigilance, the art of identification, assessing and prevention of ADRs is gaining its importance as these unintended responses may attribute to noncompliance or at times discontinuation of the therapy. The main aim of Pharmacovigilance is identification and hence prevention of potential harm caused by a drug to the patient. It starts from early stages of the clinical trials and continues through the entire life cycle of drug including premarketing and post marketing phases [3]. In psychiatry the first and major choice of management is pharmacotherapy and may often require combination of drugs to attain required therapeutic effect. [4] Usage of medications for short term in most of the cases increase the chance of relapse of symptoms, hence most of the guidelines indicate a long term usage which could be a contributing reason for developing ADRs. [5-7] In addition stringent rules in carrying out clinical trials for psychiatric medications and elimination of co-morbidities and other clinically important conditions makes usage and monitoring of psychiatric medications a great challenge clinically. [8] The adverse reactions profile with psychiatric medications are often disabling, effecting quality of life, creating social stigma, at times fatal like Neuroleptic malignant syndrome or serious skin reactions or sometimes irreversible as in tardive dyskinesia. [9, 10] As mental disorders are valued judgments with valid scientific or objective evidence, assessment and evaluation may vary. [11, 12] A close monitoring allows early identification, when followed by rectification where ever possible may prevent a potential harm or permanent disability. In countries like India where psychiatric disorders are effecting populations of all age groups at an alarming pace there is a need for monitoring of ADRs as these may lead to misconception among patients regarding treatment for psychiatric disorders

MATERIAL AND METHODS

This study is a prospective observational study done in the department of Pharmacology Kakatiya medical college, Warangal, Pharmacovigilance center and Psychiatry outpatient unit at Mahatma Gandhi Memorial Hospital, (M.G.M.H) Warangal. It is carried out after due approval of the ethical committee of medical college. All patients in the study have given informed consent for their participation.

Subject selection

A total 350 patients were screened, 215 of them developed at least one ADR, out of 215, 49 of the cases were with no conclusive evidence and 164 were included in the study analysis.

Source of Data

History and general examination of patients attending Psychiatry outpatient unit at MGM hospital Warangal. Demographic data from case sheets and ADR reporting form

Inclusion Criteria

- Patients diagnosed with psychiatric disorders
- Receiving at least one psychotropic drug
- Male and Female
- Age above 5 years

Exclusion Criteria

- Patients with substance abuse
- Patients not accompanied by care givers
- Pregnant women

PROCEDURE

Patients were selected from the Psychiatry Out-patient unit at Mahatma Gandhi Memorial (MGM) hospital, Warangal. Patients presented with psychiatric illness according to Diagnostic Statistical Manual of Mental Disorders fifth edition and taking at least one medication who developed at least one ADR were included in the study. Those who did not develop any adverse event and who have not given consent were excluded from the study. World Health Organization Adverse Reaction Terminology (WHO-ART) was used to classify ADRs into different system organ classes (SOC). Those ADRs which fall below the class of "possible" in WHO scale to assess causality assessment were not considered for the study.

Demographic data, basic history and basic investigations like complete blood picture, weight of the patients were noted. Patients were asked to report any abnormal reactions they observe. When the patients came for review, brief history was taken and complete blood picture test was done and weight is noted. Depending on these reports and history, the ADRs were collected from reporting of patients, attendants and from case sheets written by concerned doctor. Some of the ADR diagnosis is confirmed by concerned specialist doctor.

The ADRs were collected in the adverse reaction reporting form and these collected variables were used for analysis. For Analysis Microsoft excel 2007 and Microsoft word 2007 was used. ADRs reported by the patient or observed by care taker/ psychiatrist was considered for the study. The detailed adverse reaction profile, demographic data and other relevant data were collected in the format designed for adverse drug reaction monitoring center (AMC) under Pharmacovigilance Programme of India (PvPI).

Causality was assessed according to World Health Organization- Upsala Monitoring Centre WHO-UMC scale adopted by National Coordinating Center NCC-PvPI.[32] Modified Siegel and Hart wig Severity scale[47] was adopted for assessing severity. All the data required were collected under the guidance of psychiatrist.

OBSERVATION AND RESULTS

In the present study a total of 254 ADRs were developed in 164 patients with various psychiatric illness. There were a total of 46 different types of ADRs effecting different systems were recognized.

Demographic data

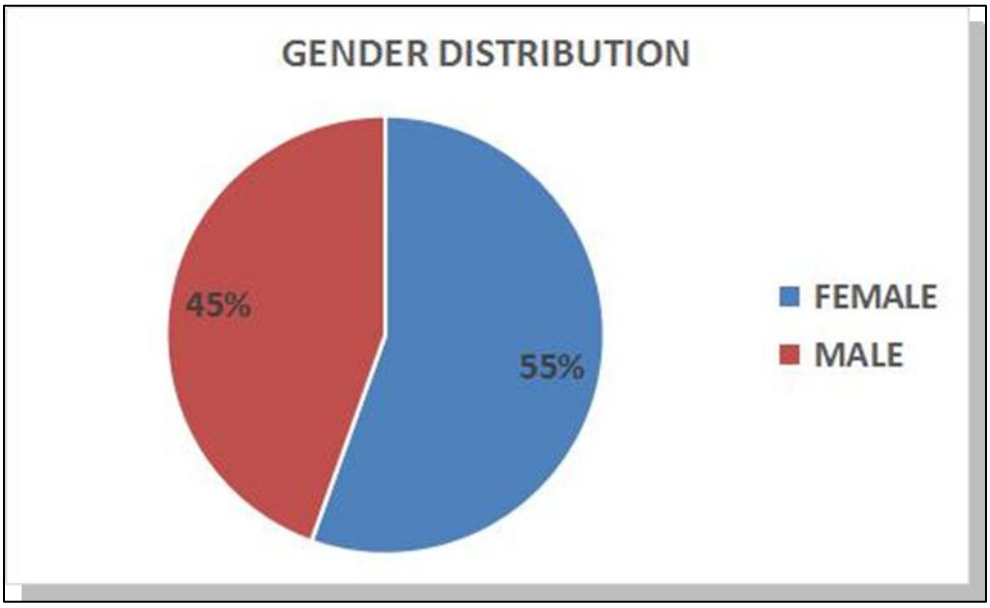

Figure 01: Pie chart depicting gender distribution of ADRs (n=164)

In this study the number of ADRs developed in females (55.48%) was comparatively more than in male (44.52%)

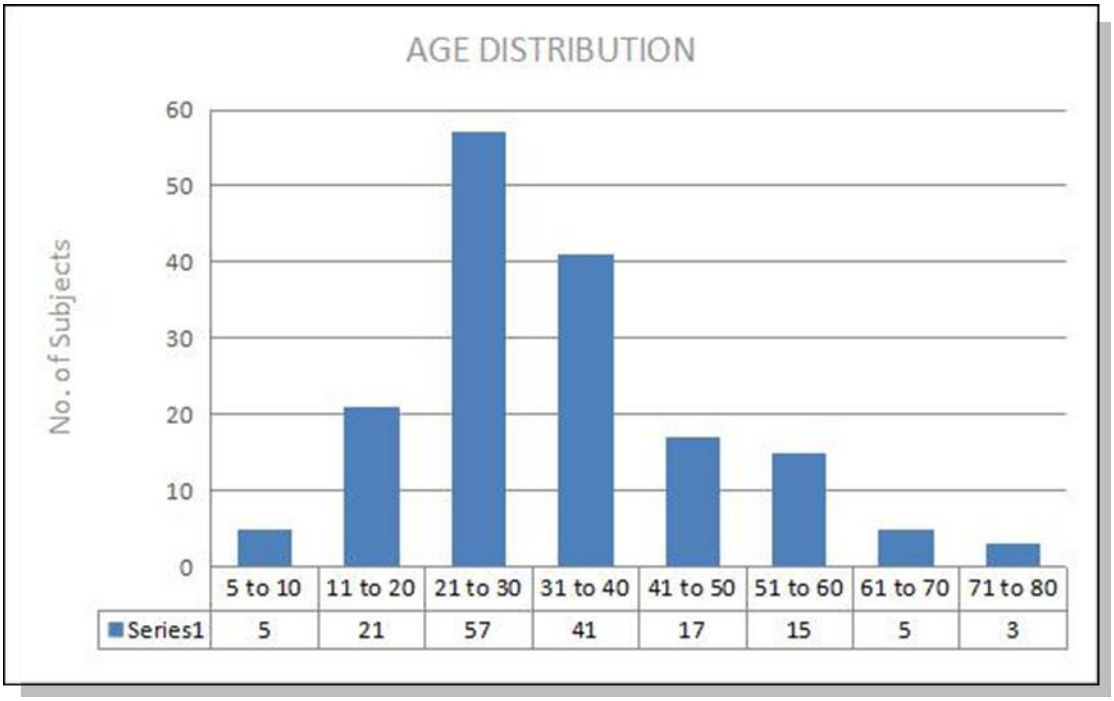

Figure 02: Bar chart showing distribution of patients according to Age group (n=164)

The patients who were in third and fourth decades are the most affected in the study as 34.7% and 25% of the patients belonged to these age groups respectively.

Table 01: Distribution of ADRs according to System Organ Classification (SOC)

ORGAN SYSTEM	VARIOUS ADRS	No.
Central and Peripheral Nervous System	Akathisia(9), Ataxia(2), Bradykinesia(5), Parkinsonism(5), Dysarthria(2), Dysphagia(2), Dystonia(12), Oculogyric Crisis(9), Rigidity(8), Slurred Speech(2), Tardive Dyskinesia(10) Tremors(33),	99
Psychiatric	Delirium(2), Drowziness(4), Insomnia(5), Appetite Lost(1), Sedation(25), Self Injurious Behaviour(1), Sexual Dysfunction(5), Hallucinations(1)	44
Gastro Intestinal	Gastritis(4), Nausea(2), Vomiting(3), Constipation(8), Dry Mouth(3), Hypersalivation(13),	33
Metabolic And Nutritional	Weight Gain(28),	28
Reproductive	Galactorrhea(4), Amenorrhea(19), Irregular Menstrual Cycles(1)	24
Musculoskeletal	Myalgia(6), Torticolis(1)	7
Skin	Alopecia(1), Hyperpigmentation(2), Hyperhydrosis(1), Itching(1), Rash(1),	6
Urinary System	Nocturnal Enuresis(3), Urinary Incontinence(3)	6
Endocrine	Hyperprolactinemia(1), Gynaecomastia(1)	2
General	Asthenia(1) Oedema(1)	2
Cardiovascular System	Orthostatic Hypotension(1)	1
Respiratory	Yawning(1)	1
Vision	Blurred Vision(1)	1
TOTAL		**254**

Figure 06: Bar chart showing distribution of ADRs based on System Organ Classification (n= 254)

OBSERVATION AND RESULTS

In the present study a total of 254 ADRs were developed in 164 patients with various psychiatric illness. There were a total of 46 different types of ADRs effecting different systems were recognized.

Table 02: Distribution of ADRs according to class of psychotropic drug

DRUG CLASS	INDIVIDUAL DRUG	No. Of ADRS	TOTAL ADRS
Antipsychotics	Risperidone	75	192
	Trifluoperazine	36	
	Olanzapine	26	
	Clozapine	19	
	Haloperidol	16	
	Aripiprazole	8	
	Chlorpromazine	6	
	Amisulpride	2	
	Trihexyphenidyl	2	
	Iloperidone	1	
	Pimozide	1	
Antidepressants	Fluoxetine	14	23
	Amitriptyline	6	
	Escitalopram	1	
	Imipramine	1	
	Duloxetine	1	
Mood Stabilizers	Valproate	11	24
	Carbamazepine	8	
	Lithium	5	
CNS Stimulants	Methylpenidate	2	3
	Atomoxetine	1	
Sedative-Hypnotics	Alprazolam	8	12
	Lorazepam	4	
TOTAL			254

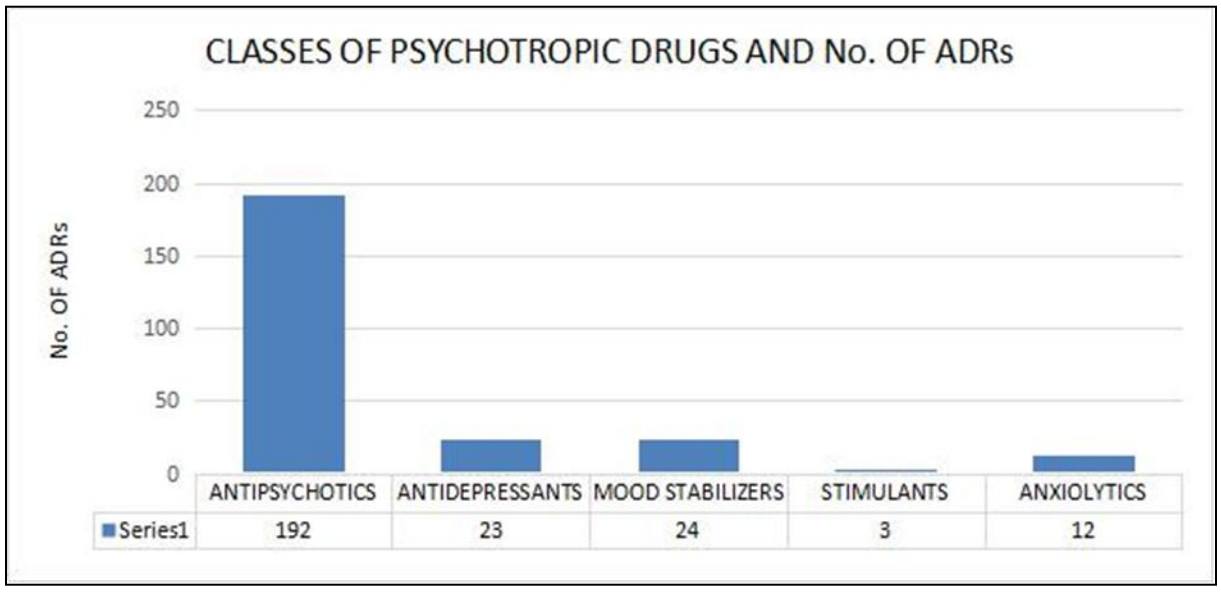

Figure 03: Bar chart depicting frequency of ADRs according to Class of Psychotropic drugs (n=254)

In the present study it was found that maximum number of ADRs seen were because of antipsychotics, which contributed to 75.59%, next were mood stabilizers and antidepressants which

were nearly equal attributing 9.6% and 9.05% respectively.

Among antipsychotics Risperidone is implicated in causing maximum number of ADRs (29.5%), followed by Trifluoperazine (14.1%) and Olanzapine (10.2%)

Table 03: Different types of ADRs noted

Sl. No.	ADRs	No.	Sl. No.	ADRs	No.
1	Tremors	33	24	Ataxia	2
2	Weight Gain	28	25	Delirium	2
3	Sedation	25	26	Dysarthria	2
4	Amenorrhea	19	27	Dysphagia	2
5	Hypersalivation	13	28	Hyperpigmentation	2
6	Dystonia	12	29	Nausea	2
7	Tardive Dyskinesia	10	30	Slurred Speech	2
8	Akathisia	9	31	Alopecia	1
9	Oculogyric Crisis	9	32	Asthenia	1
10	Rigidity	8	33	Blurred Vision	1
11	Constipation	8	34	Decreased Appetite	1
12	Myalgia	6	35	Gynaecomastia	1
13	Bradykinesia	5	36	Hallucinations	1
14	Insomnia	5	37	Hyperhydrosis	1
15	Parkinsonism	5	38	Hyperprolactinemia	1
16	Sexual Dysfunction	5	39	Irregular Menstrual Cycles	1
17	Drowziness	4	40	Itching	1
18	Galactorrhea	4	41	Oedema	1
19	Gastritis	4	42	Orthostatic Hypotension	1
20	Dry Mouth	3	43	Rash	1
21	Vomiting	3	44	Self injurious behaviour	1
22	Nocturnal Enuresis	3	45	Torticollis	1
23	Urinary Incontinence	3	46	Yawning	1
				TOTAL	**254**

46 different types of ADRs were noted in the study, among them tremors (13%) accounted for the most frequent ADR followed by weight gain (11%) and sedation (9.8%).

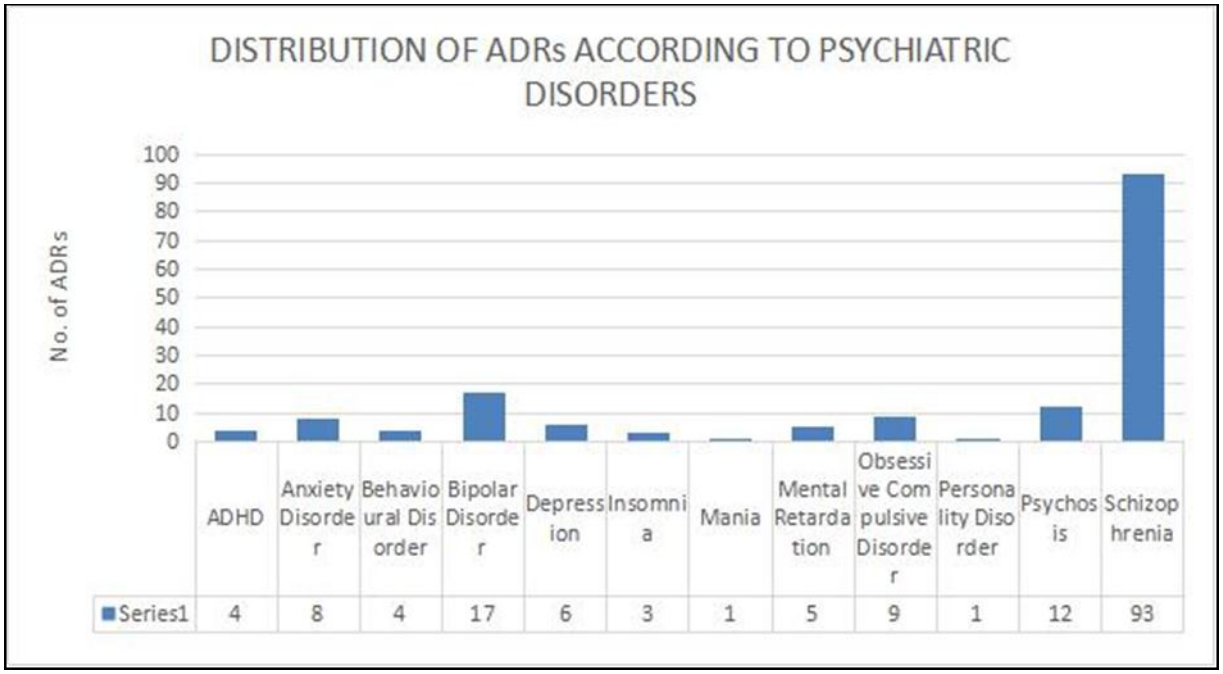

Figure 04: Bar Chart depicting distribution of ADRs according to Psychiatric disorders (n=164)

When the patients were distributed based on the disease status, patients with Schizophrenia (56.7%) were the most commonly affected with ADRs, followed by bipolar disorder (10.36%) and psychosis (7.3%)

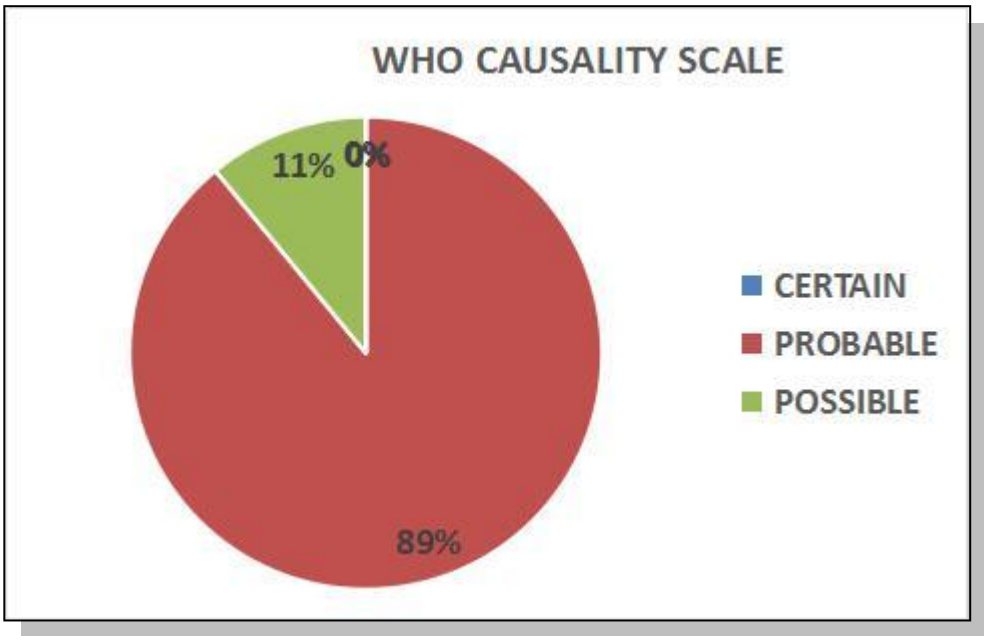

Figure 05: Pie chart depicting Causality of ADRs (n=254)

Causality assessment using WHO causality scale shows that 89% of the ADRs are categorized as Probable, 11% of ADRs as Possible and there are no ADRs under certain category.

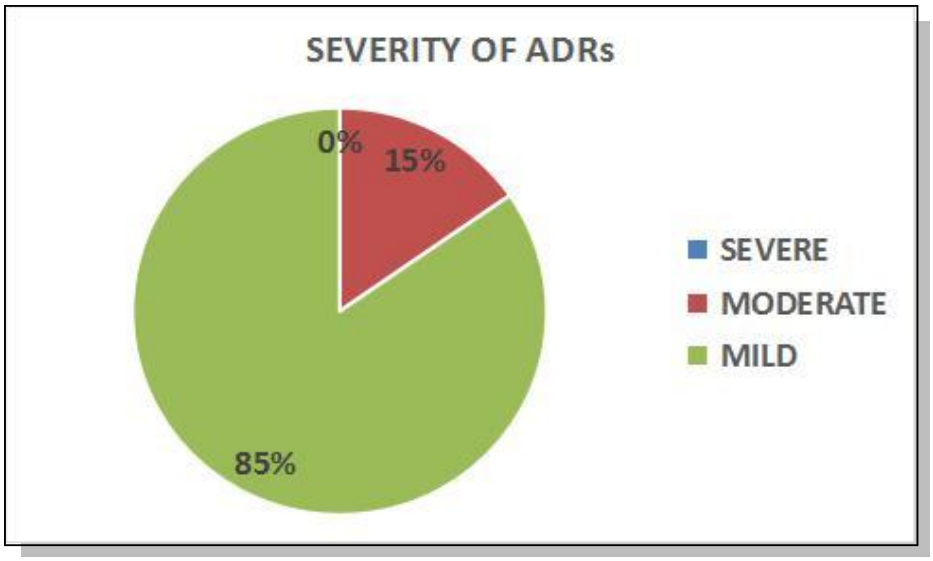

Figure 6: Pie chart depicting severity of ADRs (n=254)

Severity of the ADRs assessed by Modified Hartwig and Seigel Scale

CONCLUSION

This study offers a representative proposal of the ADR profile of Psychotropic drugs that can be expected to come across in the psychiatric patients in the Indian context. Non compliance with drug therapy is a major concern in psychiatric patients. Continuous monitoring detecting ADRs followed by dose adjustments will be considered safer and more effective, thus compliance towards medication can also be improved. Thorough knowledge of the common adverse reactions of Psychotropic drugs would decrease their incidence and increase patient adherence and enhance therapeutic outcomes. A Psychotropic drug ADR database built on the basis of studies conducted across multiple centers, through active collaboration of psychiatrists and pharmacologists, can be a worthy long-term goal. Such a database can provide early warning signals of drug reactions. Strengthening of the existing Pharmacovigilance programme of India (PvPI) is essential in order to collect and disseminate information to the healthcare professionals about the occurrence of adverse reactions, takes precautions to prevent as well as treat them and thus improve the quality of patient care by ensuring safer use of drugs. Data on adverse effects are available from a range of sources like randomized controlled trials, post-marketing surveillance etc., the best overview of adverse effects come from considering all sources together.

SUMMARY

Psychiatric disorders are one of the difficult to treat disorders. Although Psychotropic drugs clearly reduce the morbidity and mortality of psychiatric illness, they may also be associated with adverse side effects, which often cause distress to the patient and may lead to non compliance.

Aims and objectives

- To study the pattern of ADR profile of Psychotropic drugs.
- To analyze different ADRs associated with Psychotropic drugs.

Study design: Prospective observational study.

Methods

Around 350 patients who were on at least one Psychotropic drug were screened to look out for the presence of adverse drug reactions.

Results

A total of 164 patients developed 254 ADRs. Most of the reactions were associated with Antipsychotics and commonly affected the Nervous system. Females were mostly affected. The most common ADR observed is tremor and weight gain. Most of the reported reactions were probable

according the WHO causality assessment scale and most of them were of mild to moderate severity.

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