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PRESCRIPTION PATTERN OF PSYCHOTROPIC DRUGS IN A PSYCHIATRY OPD OF A TERTIARY CARE HOSPITAL – A CROSS SECTIONAL STUDY.

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ABSTRACT
Background: The expanding and challenging field of psychopharmacology is constantly seeking new and improved drugs to treat psychiatric disorders. Psychotropic drugs utilization in actual clinical practice, effectiveness and safety in the real-life situation needs continuous study. Therefore, the study was undertaken to analyze the prescription pattern of psychotropic drugs.

Methods: A Cross sectional study was conducted in the psychiatry out-patient department of a tertiary care hospital for 4 months. Diagnosis was made according to ICD-10 criteria. Prescription pattern was analyzed using World Health Organization (WHO) drug indicators.

Results: Psychotropic drugs constituted 74.85% of the prescribed medication. Average number of the psychotropic drugs per prescription was 2.53. Percentage of prescriptions with injectable drugs accounted for 5.13%. 59.28% of the drugs were prescribed by generic names, while the rest were branded. 28% of prescriptions contained psychotropic FDCs (Fixed dose combination). 78.65% of the drugs were from the WHO's 18th List of Essential Medicines. Among the total psychotropic drugs prescribed, antipsychotics (43.87%) were the most commonly prescribed class of drugs followed by antidepressants (23.32%), anxiolytics (22.13%) and the mood stabilizers (9.88%) were the least.

Conclusions: Prescription pattern of the psychotropic drugs were in accordance to the recommendations of various treatment guidelines. Antipsychotics were the most commonly prescribed psychotropic drugs.

KEYWORDS : Drug utilization, Psychotropic, Out-patient

INTRODUCTION

Therapeutic practice is expected to be primarily based on evidence provided by pre–marketing clinical trials, but complementary data from the post–marketing period are also paramount for improving drug therapy [1]. So it is important to perform the pharmaco epidemiological study like Drug utilization study over time. Drug Utilization Research (DUR) was defined by the WHO in 1977 as "The marketing, distribution, prescription, and use of drugs in a society, with special emphasis on the resulting medical, social and economic implications" [2].

Drug utilization studies seeks to monitor, evaluate and if necessary, suggest modifications in prescribing patterns so as to make medical care rational and cost-effective[3]. It is important to realize that inappropriate use of drugs represent a potential hazard to patients and an unnecessary expenditure. This necessitates a periodic review of pattern of drug utilization to ensure safe and effective treatment to the patient. To improve the overall drug use World Health Organization (WHO) and International Network for Rational Use of Drugs (INRUD) have recommended standard drug use indicators which help us to know the shortcomings in our prescription writing[4].

Psychiatric disorders form an important public health priority. Of the top ten health conditions contributing to the disability adjusted life years (DALYs), four are psychiatric disorders [5]. The expanding and challenging field of psychopharmacology is constantly seeking new and improved drugs to treat psychiatric disorders[4]and psychotropic drugs have had a remarkable impact in psychiatry, but their utilization in actual clinical practice, effectiveness and safety in the real-life situation needs a continuous study[6].

Keeping this in mind, the present study was undertaken to analyze the prescription pattern of psychotropic drugs in the outpatients of psychiatry department of a tertiary care teaching hospital in Karnataka as per WHO and INRUD Indicators.

METHODS

Source of data

The study was conducted on patients attending psychiatry outpatient department at Krishna Rajendra Hospital attached to Mysore Medical college and Research institute, Mysore.

Study design

Descriptive, cross sectional, observational study.

Study period

15th JUNE 2019 – 15th SEPTEMBER 2019

Sample size

Sample size for the study was calculated to be 100 using the formula ,N= 4 pq/d2 with 95% confidence interval , 80% Power, prevalence of 10.5% and alpha error of 6%

INCLUSION CRITERIA

Patients diagnosed with psychiatric disorders as per ICD-10 criteria and started on at least one psychotropic drug of all age groups and sex, attending the psychiatry outpatient department.

EXCLUSION CRITERIA

In-patients, Referred patients, Patients on anti-epileptic treatment and Pregnant and lactating women were excluded from the study.

Study methodology

Following approval of the Ethics Committee of Mysore Medical College and Research Institute, Mysore and obtaining written informed consent from patients, this cross sectional, observational study was conducted on patients attending psychiatry outpatient department during the study period.

Diagnosis was made according to the ICD-10 criteria. A predesigned and pre-tested structured proforma was used to collect the required information. Age, sex, diagnosis (patient

information) and name of the drug, dosage form, route of administration and duration of prescription (drug information) were recorded. The outcome of the current DUS on psychotropic medications was assessed as per WHO-INRUD drug use indicators.

WHO drug use indicators included, to analyze the prescriptions were: (1) average number of the drugs per prescription, (2) average number of the psychotropic drugs per prescription, (3) percentage of the psychotropic drugs prescribed by generic name, (4) percentage of injectable drugs prescribed, (5) percentage of prescriptions containing psychotropic fixed dose combinations (FDC), (6) percentage of the psychotropic drugs prescribed from essential drug list.

DATA ANALYSIS
Data was entered and analyzed in Microsoft Excel. Results were expressed in terms of frequency and percentage distribution.

RESULTS
Characteristics of study participants
The percentage of female and male patients was 57% and 43%, respectively. The relative distribution of different psychiatric disorders in different age groups and genders is shown in Table 1.

Pattern of psychiatric disorders
According to the result of the study, the morbidity pattern of psychiatric diseases observed were 41% Schizophrenia and other psychotic disorders, 21% Bipolar affective disorder, 20% Depressive disorder, 14% neurotic and stress related disorders which includes phobias, anxiety, OCD, Panic, adjustment disorders etc. The demographic profile of morbidity pattern among different psychiatric illness is shown in Table 1.

Table 1: Demographic profile of morbidity pattern amongst psychiatric Disorders

PSYCHIATRIC DISORDERS	AGE IN YEARS				GENDER	
	<20	21-40	41-60	>60	M	F
SCHIZOPHRENIA AND OTHER PSYCHOSES (n=41)	2	30	8	1	17	24
MOOD DISORDERS (n=41)	4	20	13	4	16	25
NEUROTIC AND OTHER STRESS RELATED DISORDERS(n=14)	0	11	3	0	6	8
OTHERS (n=4)	0	3	1	0	4	0
TOTAL (n=100)	6	64	25	5	43	57

Analysis of prescription patterns according to WHO/ INRUD drug use indicators
In the present study, Psychotropic drugs constituted 74.85% of the prescribed medication. The prescriptions were thoroughly assessed as per WHO/INRUD drug use indicators and reported in Table 2.

Table 2: Assessment of prescriptions as per WHO/INRUD drug use indicators

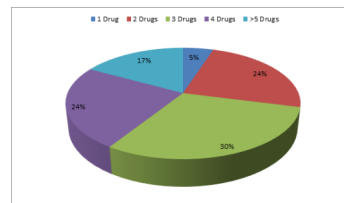| SL. NO	DRUG USE INDICATORS	RESULTS
1	Average number of drugs per prescription	3.38
2	Average number of psychotropic drugs per prescription	2.53
3	Percentage of prescriptions containing psychotropic FDCs	28% (28/100)
4	Percentage of psychotropic drugs prescribed by generic name	59.28% (150/253)
5	Percentage of injectable drugs prescribed	5.13% (13/253)
6	Percentage of psychotropic drugs prescribed from essential drug list	78.65% (199/253)

Average number of the psychotropic drugs per prescription was 2.53. Percentage of prescriptions with injectable drugs accounted for 5.13%. 59.28% of the drugs were prescribed by generic names, while the rest were branded. 78.65% of the drugs were from the WHO's 18th List of Essential Medicines.

All the psychotropic drugs prescribed were categorized into 4 broad classes i.e. antidepressants, antipsychotics, anxiolytics and anti-manic/mood stabilizers as shown in table 3.

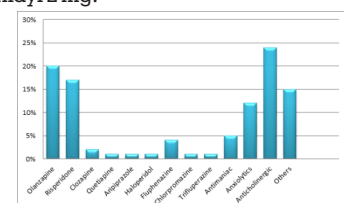**Table 3: Prescribing prevalence of individual psychotropic drugs**

Drug class	Drug name	No of drugs (n=253)	% of drugs
ANTISYCHOTICS (n=111) *Atypical – 97 *Typical - 14	Olanzapine	51	45.95%
	Risperidone	37	33.33%
	Others	23	20.72%
ANTIDEPRESSANTS (n=59) *SSRI -39 *TCA -15 *Others -5	Escitalopram	15	25.42%
	Fluoxetine	15	25.42%
	Amitriptyline	11	18.64%
	others	18	30.50%
MOOD STABILIZERS (n=25)	Valproate	15	60%
	Lithium	8	32%
	Carbamazepine	2	8%
ANXIOLYTICS (n=56)	Clonazepam	27	48.21%
	Lorazepam	14	25%
	Others	15	26.78%

Among the total psychotropic drugs prescribed, antipsychotics (43.87%) were the most commonly prescribed class of drugs followed by antidepressants (23.32%), anxiolytics (22.13%) and anti-manic/ mood stabilizers (9.88%).

Figure 1: Distribution of number of psychotropic drugs per prescription

Figure 1 shows the distribution of the number of prescribed drugs per patient. Out of the total 100 prescriptions, only 5% were prescribed with one drug whereas 95% prescriptions contained more than one drug. Majority of the prescriptions were prescribed with 3 drugs (30%), followed by 2 and 4 drugs (24% each), Prescriptions containing 5 or >5 drugs accounted for 17% of the total prescriptions. Out of the total 100 prescriptions analyzed, 28 prescriptions (28%) contained FDCs. The commonly prescribed FDC were Escitalopram 10 mg + Clonazepam 0.5 mg and Risperidone 3 mg + Trihexyphenidyl 2 mg.

Fig-2: Percent utilization of drugs schizophrenia and other psychoses

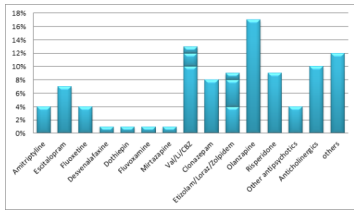Drugs used in Schizophrenia and other psychoses: (n=139) [Fig-2].

Fig-3: Percent utilization of drugs in mood disorders

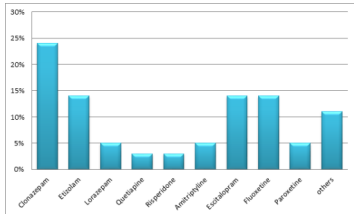Drugs used in Mood disorders: (n=135) [Fig-3].

Fig-4: Percent utilization of drugs in Neurotic and stress related disorders

Drugs used Neurotic and other stress related disorders: (n=37) [Fig-4].

DISCUSSION

Profile of study participants

More female patients visited the psychiatry OPD than males. Many studies have reported a similar finding [1]. The reproductive age group (21–40 years) accounted for the majority of all the psychiatric disorders, as has been seen in many other studies [1,4,7,8].

Prescription Pattern Analysis as per the WHO/INRUD Drug Use Indicators

The average number of psychotropic drugs per prescription was 2.53, which is comparable with the findings of other studies where it ranged from 1.7 to 3.5 drugs per prescription [1,3,9].

About 28% prescriptions contained psychotropic FDCs. Escitalopram (Anti-depressant) + Clonazepam (Anxiolytic) and Risperidone (Atypical antipsychotic) +Trihexyphenidyl hydrochloride (central anticholinergic) were the most common FDC prescribed. Prescription of anti-cholinergics with both typical and atypical antipsychotics is very common to prevent extra-pyramidal side-effects (EPS) but WHO has recommended that anti–cholinergics should not be used routinely but used only for short term in selected cases [1].

59.28% of psychotropic drugs were prescribed by generic names. WHO highly recommends prescribing medications by generic name [8] but there have been concerns in the case of narrow therapeutic index drugs (NTIDs. The US FDA recommends that the decision should be based on one's professional judgment [1].Generic substitution can be beneficial, provided, adequate quality control is assured.

About 94.87% oral and 5.13% parenteral preparations were used, which is comparable with the study done by sonali et al. where 96.7% oral and 3.3% injectables were used. The injections prescribed were Fluphenazine, Lorazepam and Haloperidol. Concern about the adverse effects and cost-effectiveness of parenteral route of drug administration, are probably the reasons for the low utilization of depot injection formulation in the psychiatry OPD.

Utilization of drugs from the essential medicines list (WHO) was very high (78.65%). The primary purpose of NLEM is to promote rational use of medicines considering the three important aspects i.e. cost, safety, and efficacy [5].

Observed Drug Use Pattern in Schizophrenia

The most commonly prescribed drugs were Atypical/2nd generation anti–psychotics. This is, as per the current recommendations and owing to their better tolerability, low relapse rate, efficacy against refractory cases, better control over negative symptoms ,safer adverse event profile and free availability in the hospital. Among atypical antipsychotics Olanzapine was the most common antipsychotic drug prescribed followed by Risperidone and others. Systematic review has shown that olanzapine is more efficacious than other second generation antipsychotic drugs [5].

Observed Drug Use Pattern in Mood disorder

Among the anti–depressants, the Selective Serotonin Reuptake Inhibitors (SSRI) was prescribed more than the Tricyclics (TCAs). This is as per the current recommendations (APA and NICE) in the management of mood disorders. Currently, SSRIs are greatly preferred over the other classes of antidepressants. The adverse-effect profile of SSRIs is less prominent than that of some other agents, which promotes better compliance. The SSRIs are thought to be relatively unproblematic in patients with cardiac disease except citalopram in high doses [7].

Among the drugs used in bipolar mood disorder Olanzipine was most commonly prescribed followed by Valproate, Risperidone, Lithium, and Quetiapine. Studies have shown that patients with bipolar disorder have fewer episodes of mania and depression when treated with mood stabilizing drugs [1]. In general, lithium is superior to valproate but the concern about its narrow therapeutic index and difficulty in obtaining drug levels of lithium, explains the low use of lithium in our center. Many drug utilization studies have also reported a similar finding.

Observed Drug Use Pattern in Neurotic and other stress related Disorders

Clonazepam was the most commonly prescribed drug followed by Etizolam, Escitalopram and fluoxetin. The 2011 NICE guidelines for the management of anxiety disorders state that SSRIs or Serotonin Norepinephrine Reuptake inhibitors (SNRIs) should be offered to the patient first. Benzodiazepines should be avoided and used only for short term in case of crisis [1].

CONCLUSION

Prescription pattern of the psychotropic drugs were in accordance to the recommendations of various treatment guidelines. Antipsychotics were the most commonly prescribed psychotropic drugs.

DECLARATIONS

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