



A RETROSPECTIVE DRUG UTILIZATION STUDY OF ANTIDEPRESSANTS IN THE PSYCHIATRY UNIT OF DISTRICT HOSPITAL, MYSORE

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ABSTRACT

Drug utilization is the marketing, distribution, prescription and the use of drugs in a society. Antidepressant prescribing patterns have changed globally over the last few years, with conventional drugs like tricyclics & MAO inhibitors being gradually replaced by SSRIs & novel antidepressants. Here an attempt has been made to study the pattern of drug utilization of antidepressant drugs in our hospital. Aims to observe the prescribing pattern of antidepressants among psychiatrists at K R Hospital, Mysore. To assess the use of antidepressants in diagnosis other than depressive disorder. A retrospective observational analysis of the case records of patients who received antidepressant prescriptions at the psychiatry inpatient of K R Hospital, during the period from 1st July 2011 to 31st June 2012, to study the pattern of prescription & to assess the use of antidepressants. Out of 135 patients who received psychotropic medications during the study period, 82(60.7%) received one or more antidepressants. Among antidepressants SSRIs were the most commonly prescribed antidepressants followed by tricyclics and atypical antidepressants. The total number of prescriptions which were given was 135 and a total of 486 drugs were prescribed. Of them, 91 were antidepressant medications of 10 types. Average number of drugs per prescription was 3.6. Mean number of antidepressants per patient was 0.67. Antidepressants usage per patient was 1.08. Our study shows that depressive disorder was the 3rd most common psychiatric diagnosis in the population and that antidepressants were 2nd most commonly prescribed psychotic medicines. There was a higher prevalence of antidepressant prescribing to men. A majority of the antidepressants were prescribed to young & older adults between 21 & 40 years. The SSRI fluoxetine & escitalopram and tricyclic antidepressant imipramine were the most commonly prescribed antidepressants, with or without other concomitant psychotropic medicines.

Key words: Antidepressants, Drug utilization, Fluoxetine, Escitalopram.

INTRODUCTION

The World Health Organisation (WHO) defines drug utilization as the marketing, distribution, prescription and the use of drugs in a society, with special emphasis on the resulting medical, social and economic consequences [1]. Often, drugs are not used, keeping in mind their safety and efficacy [2].

Rational drug prescribing is the use of the least number of drugs to obtain the best possible effect in the

shortest period and at a reasonable cost [3]. Irrational prescribing and disparity between the prescription and the consumption of medicines may offset the benefits which are demonstrated by randomized controlled trials on drug efficacy [4-7]. Moreover, the optimistic expectations of a drug, based on the results of clinical trials, may not materialize when they are used outside controlled settings [8].

The recent proliferation of new drugs, the increasing recognition of delayed adverse effects and the focus on pharmaco-economic considerations have stimulated interest in the prescribing patterns of physicians⁵.

Antidepressant prescribing patterns have changed globally over the last few years, with conventional drugs like tricyclics and MAO inhibitors being gradually replaced by selective serotonin reuptake inhibitors (SSRIs) and novel antidepressants. The prevalence of antidepressant usage in the community is rising in Western populations, with Iceland, Australia and Sweden having the highest consumption [9].

Therefore, our aim was to study the drug utilization of antidepressant drugs in the psychiatric unit of a tertiary care hospital in Mysore.

Our objectives were

1. To observe the prescribing pattern of antidepressants among psychiatrists at K R Hospital, MMC & RI, Mysore.
2. To assess the use of antidepressants in diagnosis other than depressive disorder.

MATERIALS AND METHODS

Study design: Retrospective observational study.

Study site: Psychiatry unit of K R Hospital, MMC&RI, Mysore.

Study duration: 1st July 2011 to 31st June 2012{1 year}

Inclusion criteria:

- All patients who were admitted in the Psychiatry inpatients (IP) clinic of the hospital from 1st July 2011 to 31st June 2012.
- All patients who have been started on antidepressant medication irrespective of diagnosis.

Exclusion criteria:

- Patients who did not receive antidepressant drugs.
- Patients continuing on only those antidepressant drugs which were prescribed outside the hospital.

Methods:

Case records of the Psychiatric inpatients were taken from the medical records section of the hospital. The data obtained were entered into a pre-designed proforma.

1	Inpatient Registration Number
2	Date
3	Age
4	Sex
5	Address
6	Domicile
7	Education
8	Marital Status
9	Occupation
10	Income

11	Registration By Self / Family
12	Referring Dept
13	Substance / Drug Dependence
14	Primary Diagnosis
15	Co-morbidity
16	Concomitant Medications (Psychotropic or Non Psychotropic)
17	Antidepressant(s) Used
18	Antipsychotic(s) Used
19	Mood Stabilizer(s) Used
20	Doses of Antidepressant / Antipsychotic / Mood Stabilizer
21	Any Augmentation
22	Was Drug Changed, & If So Reason For Change?
23	Adverse Reactions Observed
	• Neurological
	• Anti-Muscarinic
	• Cardiovascular
	• Metabolic / Endocrine
	• Gastro-Intestinal
	• Psychiatric / Behavioural
	• Others

By following the method of Baldessarini RJ et al [10] for defining drug use, we selected prescriptions containing at least one antidepressant as one prescription, from the multiple prescriptions in the case records with follow-up visits. Thus, if the initial prescription was continued, it was regarded as the same prescription for the given duration. Any dose change in that prescription was noted for calculating the drug consumption. The addition of another antidepressant to or a change of the antidepressant from the existing regimen was regarded as a separate prescription. In both the cases, the number of drugs in the prescription included the added or changed antidepressant(s), along with concomitant medications from the earlier prescription. However, prescriptions containing drugs for co-morbid conditions (non-psychiatric) which were not prescribed in the department of Psychiatry were excluded.

The data was then subjected to analysis for:

1. Demographic details (Age and gender distribution)
2. Psychiatric diagnosis
3. Antidepressant drugs prescribed
4. Defined daily dose (DDD) of the antidepressants per thousand inhabitants per day (DID)
5. Prescribed daily dose (PDD) of the antidepressants
6. The PDD to DDD ratio of the antidepressants.

The calculations of DID was done by the following methodology outlined by WHO [11]. The Anatomical Therapeutic Chemical (ATC) classification and the Defined Daily Dose (DDD) per thousand inhabitants per day (DID) calculations were used for estimating the antidepressant use in the community. By following the

methodology which was outlined by the WHO [11], we calculated the DID as follows:

$$\frac{\text{Amount of antidepressant prescribed in 1 year (mg)} \times 1000 \text{ inhabitants}}{\text{DDD (mg)} \times 365 \text{ days} \times \text{Population of Mysore}}$$

All patients belonged to Mysore district of Karnataka. So, for the calculation of DID, we used the population of Mysore district as per the available census.

The total number of DIDs was calculated by adding up the DIDs for the individual antidepressants.

The PDD was calculated as follows:

- For each prescription, there were multiple doses of the antidepressants. We took the average of the daily doses for the antidepressant as the PDD. This process was repeated for all the indications of each antidepressant and the final value was the average of the PDDs which were thus obtained.

- The PDD to DDD ratio was then calculated.

Statistical analysis

A descriptive statistical analysis was carried out in the present study. The results on the continuous measurements were presented as Mean ± SD (Min-Max) and the results

on the categorical measurements was presented as Number (%). The significance was assessed at a 5% level of significance (P<0.05) with 95% confidence interval.

1. The dependent variables should be normally distributed.
2. Samples which are drawn from the population should be random and the cases of the samples should be independent.

As it was a non-interventional study, the institutional research Committee granted a waiver on the assurance that the subject confidentiality would be maintained. We took the following steps in this regard:

1. Identification of patients by the hospital number only and not by name.
2. Case records were accessed by investigators in the Medical Records section only.
3. Patient details were not divulged to any party other than the co-investigators.
4. Proformas were destroyed after the conclusion of the study.

Out of 135 patients who received psychotropic medications during the study period, 82(60.7%) received one or more antidepressants.

Figure 1. Among antidepressants SSRIs were the most commonly prescribed antidepressants followed by tricyclics and atypical antidepressants.

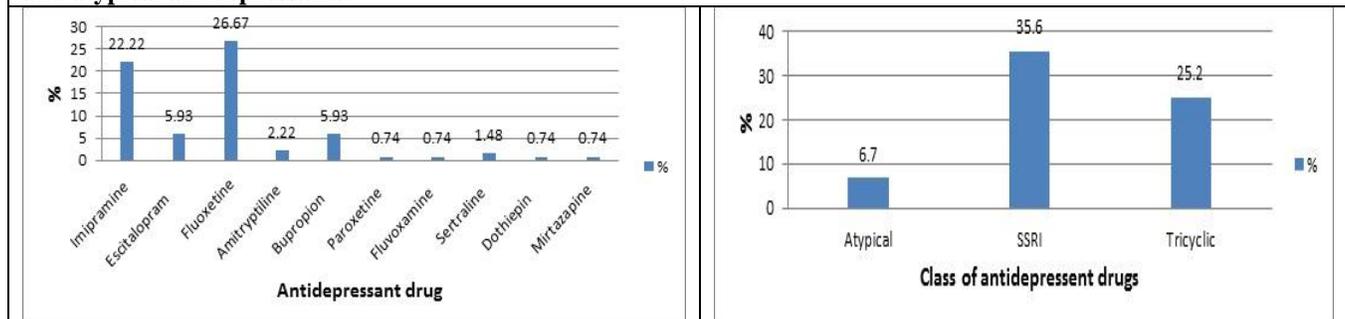
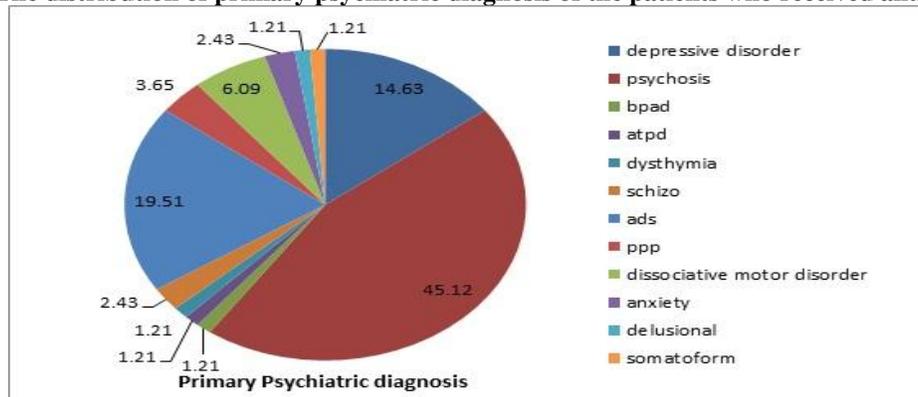


Figure 2. The distribution of primary psychiatric diagnosis of the patients who received antidepressants



The total number of prescriptions which were given was 135 and a total of 486 drugs were prescribed. Of them, 91 were antidepressant medications of 10 types.

Average number of drugs per prescription: 3.6
 Mean number of antidepressants per patient: 0.67
 Antidepressants usage per patient: 1.08

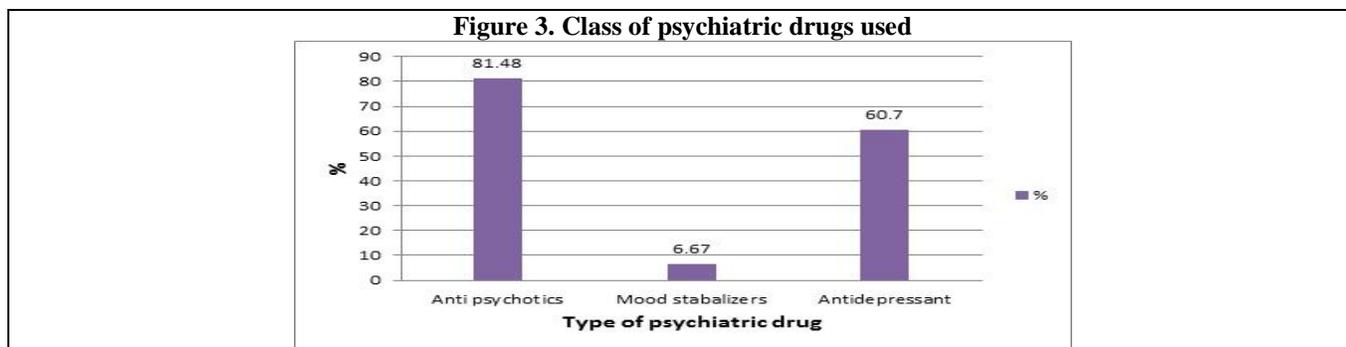


Table 1. Age distribution for prescriptions according to Antidepressant drugs

Drugs	No	Age in years				P
		1-20 (%)	21-40	41-60	>60	
Imipramine	30	6 (20)	15 (50)	9 (30)	0	0.6
Escitalopram	8	2 (25)	4(50)	2 (25)	0	0.9
Fluoxetine	36	9(25)	17 (48)	6 (16.7)	4 (11.1)	0.003
Amitryptiline	3	0	2 (66.7)	1 (33.3)	0	0.8
Bupropion	8	0	6 (75)	2 (25)	0	0.4
Paroxetine	1	0	1 (100)	0	0	0.8
Fluvoxamine	1	0	1 (100)	0	0	0.8
Sertraline	2	0	1 (50)	1 (50)	0	0.8
Dothiapin	1	0	0	1 (100)	0	0.4
Mirtzapine	1	0	0	1 (100)	0	0.4

Table 2. Gender distribution of prescriptions according to Antidepressant drugs

Antidepressants	No	M (%)	F (%)	P value
Imipramine	30	15 (50)	15 (50)	0.2
Escitalopram	8	2 (25)	6 (75)	0.04
Fluoxetine	36	20(55.6)	16(44.4)	0.4
Amitryptiline	3	1(33.3)	2(66.7)	0.5
Bupropion	8	8(100)	0	0.02
Paroxetine	1	0	1(100)	0.4
Fluvoxamine	1	1(100)	0	0.6
Sertraline	2	0	2(100)	0.1
Dothiapin	1	1(100)	0	0.6
Mirtozapine	1	1	0	0.6

Table 3. Concomitant medications which were prescribed in the department of psychiatry

Drug class	No of prescriptions (n=135)	%
Sedative hypnotics	107	79.25
Antipsychotics	110	81.48
Mood stabilisers	9	6.67
Trihexiphenidyl	56	41.48
Vitamin B1	2	1.48

Table 4. Number of drugs per prescription

No of drugs used	No	%
2	18	13.3
3	46	34.1
4	42	31.1
5	29	21.5
Total	135	100.0

DISCUSSION

Antidepressants were prescribed more in males than in females. Fluoxetine was prescribed significantly more in males than in females. The age distribution shows the majority of patients who received antidepressants belonged to the 21-40 age groups. Depressive disorder was the 3rd most common psychiatric diagnosis among the population (n=135). Antidepressants were the 2nd most common psychotropic drugs which were prescribed (60.7%). Most common antidepressant which was prescribed was the SSRI, fluoxetine (39.56%), followed by imipramine (32.96), escitalopram (8.79%) and bupropion (8.79%). The prescription of a single antidepressant was common and it occurred in 89.02% of the cases. Antipsychotics were the most common group of drugs which were prescribed (81.48%) concomitantly with antidepressants, followed by trihexiphenidyl, mood stabilizers, vitamin B1. The average number of drugs per prescription was 3.6.

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CONCLUSION

Our study shows that depressive disorder was the 3rd most common psychiatric diagnosis in the population and that antidepressants were 2nd most commonly prescribed psychotropic medicines. There was a higher prevalence of antidepressant prescribing to men.

A majority of the antidepressants were prescribed to young & older adults between 21 & 40 years. The SSRI fluoxetine & escitalopram and tricyclic antidepressant imipramine were the most commonly prescribed antidepressants, with or without other concomitant psychotropic medicines. Most of the patients were treated by a single antidepressant.

Antidepressants were prescribed for many indications other than depressive disorders. The prescriptions were complete and polypharmacy was not seen. Adequate dosing was seen for all the antidepressants.