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Research Article

PRESCRIPTION PATTERN ANALYSIS OF ANTIDEPRESSANTS IN PSYCHIATRIC OUTPATIENT DEPARTMENT OF TERTIARY CARE HOSPITAL IN INDIA

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ABSTRACT

Objectives: (1) To study the prescription pattern of antidepressants in treatment of depression in psychiatry outpatient department of tertiary care hospital in India, (2) to find the change in drug therapy during last 1 year of the treatment (old patients), (3) to study reason for a change in drug therapy, and (4) to calculate prescribed daily dose (PDD) of the individual drugs.

Methods: It was cross-sectional single centered observational study with a sample size of 284 cases. Case record forms were filled from case paper. Results were analyzed.

Results: Monotherapy was practiced in 259 patients, i.e., 91.19% of the study population. A maximum number of patients (n=159, 55.98%) received escitalopram monotherapy. Polytherapy was practiced in 25 (8.8%) patients. Out of 160 old cases, 9 patients required a change in drug therapy either in the form of drug or dose. PDD values were escitalopram: 12.30, fluoxetine: 18.43, paroxetine: 25, sertraline: 96.35, amitriptyline: 57.79, imipramine: 5.75, and mirtazapine: 17.67.

Conclusion: From our study, it is concluded that the incidence of depression is more in females. Selective serotonin receptor inhibitors were the most common class of drugs used followed by tricyclic antidepressants. Escitalopram was most frequently prescribed antidepressant followed by amitriptyline. The prescription trend was toward monotherapy. Most patients continued treatment on the same medication. The poor therapeutic response was the most common reason for drug change.

Keywords: Depression, Prescribed daily dose, Defined daily dose.

INTRODUCTION

Depression is becoming important health problem worldwide because of its relatively high lifetime prevalence, significant disability, suffering, dysfunction and economic burden caused by it [1]. India is among one of the countries with the highest number of people suffering from depression. It suggests that a deficiency or imbalance in the monoamine neurotransmitters such as serotonin, dopamine, and norepinephrine can lead to depression. This hypothesis is also supported by the fact that the known antidepressants like monoamine oxidase inhibitors, tricyclic antidepressants (TCA), and selective serotonin reuptake inhibitors (SSRIs) have been known to boost monoamine function [2].

Drug utilization study has been defined by the World Health Organization (WHO) as "marketing, distribution, prescription and use of drugs in a society with special emphasis on the resulting medical, social, economic consequences." The principal objective of drug utilization research is to facilitate rational use of drugs which is difficult to find without the knowledge of prescription pattern. The study of prescribing patterns monitor, evaluate and if necessary, suggest modifications in the prescribing behavior of medical practitioners to make medical care rational and cost-effective.

Prescribed daily dose (PDD) is the average daily dose prescribed which is prescribed according to a representative sample of population and is an indicator of the actual quantity of the drug or class of drug used per day over a given time period per user [3]. Very few studies were done previously on the prescription pattern of antidepressant drugs in India and PDD [1,4,5]. Changes in prescription pattern over a time are expected and what influences this change is a valuable tool in our understanding of drug use. Hence our research applied drug utilization studies to describe the prescription pattern of antidepressant use in a tertiary care hospital.

METHODS

It was cross-sectional single centered observational study conducted in psychiatry outpatient department of a tertiary care hospital in India. Permission from the Institutional Ethics Committee was obtained. A total number of patients were 284 [6]. Duration of the study was 8 months from October 2013 to June 2014.

Diagnosed cases of depression by treating physician were screened according to inclusion and exclusion criteria as mentioned below. Written informed consent of the patients who were willing to participate in the study was obtained. Case record forms were filled from the data obtained from case papers. The case record form included demographic profile (name, age, and sex), diagnosis of the patient, and details of the drug therapy. PDD for each drug was calculated as follows [7]:

$$\text{Prescribed Daily Dose} = \frac{\text{Total amount of drug prescribed}}{\text{Duration of prescription}}$$

Patients taking treatment of depression for the first time were taken as new cases and patients coming for follow-up were taken as old cases. For old cases, prescriptions for last 1 year were analyzed. If there is any change in drug therapy, the reason for a change in drug therapy was written in the case paper.

Microsoft excel 2013 was used for statistical analysis and results were expressed as number and percentage.

Inclusion criteria

Patients diagnosed with depression in an outpatient department

(old and new) by treating physician according to DSM IV criteria and prescribed antidepressant drugs with age between 18 and 65 years and patients ready to give consent.

Exclusion criteria

Patients judged clinically by the treating physician to be at suicidal risk, patients of major depression with psychotic features not in the state of giving consent and patients with bipolar disorder.

RESULTS

The results included the number of patients taking a particular antidepressants and therefore I have expressed them in percentage and cannot be expressed in Mean ± SD.

The mean age of the study population was 43 ± 9.4. A total number of female patients were 176 (61.97%) and males were 108 (38.02%).

Details of monotherapy are given in Table 1. Antidepressants prescribed as combination therapy are given in Table 2. Most commonly prescribed antidepressant dose is given in Table 3.

About 11 (3.87%) patients were prescribed antipsychotics along with antidepressants. Escitalopram and olanzapine combination were given in 7 (2.46%) patients. Quetiapine and amisulpride were co-prescribed in 1 (0.35%) patient each.

Benzodiazepines (BZD) were prescribed in 84 (29.58%) patients. Diazepam was the most common (n=53, 18.66%) BZD co-prescribed followed by clonazepam (n=20, 7.04%), lorazepam (n=7, 2.46%), and chlordiazepoxide4 (n=1.41%).

Other concomitant medications prescribed were multivitamin B-complex 56 (19.72%), bisacodyl 32 (11.26%), ranitidine 10 (3.52%), ferrous sulfate-folic acid 3 (1.06%), Lithium 1 (0.35%), lamotrigine 1 (0.35%), propranolol 4 (1.4%), and calcium lactate 11 (3.87%).

A total number of old cases in the study were 160. Nine (5.63%) patients among them required a change in drug therapy either in the form of drug or dose. One patient was shifted to escitalopram (0.01 g) and fluoxetine (0.02 g) therapy from imipramine, drug changed in 2 cases from amitriptyline (0.075 g) to escitalopram (0.01 g). Imipramine (0.075 g) changed to escitalopram (0.01 g) in 1 patient. Amitriptyline was added to escitalopram in one patient. Two patients on amitriptyline were shifted from the dose of 0.075-0.1 g and 0.05-0.075 g, respectively. One patient on imipramine was shifted from the dose of 0.075-0.01 g and one patient on fluoxetine was shifted from the dose of 0.02-0.04 g. PDD has been given in Table 4.

Table 1: Patients prescribed with monotherapy

Drug	Number of patients (%)
SSRIs	
Escitalopram	159 (55.98)
Fluoxetine	4 (1.41)
Paroxetine	4 (1.41)
Sertraline	3 (1.06)
TCAs	
Amitriptyline	53 (18.66)
Imipramine	26 (9.15)
Atypical antidepressants	
Mirtazapine	10 (3.52)
Total	259 (91.19)

SSRI: Selective serotonin reuptake inhibitors, TCA: Tricyclic antidepressants, A total of 259 (91.19%) patients were on monotherapy. SSRI was prescribed in 170 (59.86%) patients as monotherapy while TCA in 79 (27.82%) patients. Among SSRIs, escitalopram was prescribed in 159 (55.98%) patients as monotherapy.

Table 2: Antidepressants prescribed as combination therapy

Drug	N (%)
Escitalopram+Amitriptyline	16 (5.63)
Escitalopram+Imipramine	5 (1.76)
Escitalopram+Fluoxetine	4 (1.41)
Total	25 (8.8)

Polytherapy was practiced in 25 (8.8%) patients. TCA with SSRI combination which included amitriptyline and escitalopram was prescribed in 16 (5.63%) patients, 5 (1.76%) patients received escitalopram and imipramine, while 4 (1.41%) patients received a combination of fluoxetine and escitalopram.

Table 3: Most commonly prescribed antidepressant dose (per tablet)

Drug	Dose (g)
Amitriptyline	0.01
Imipramine	0.05
Escitalopram	0.075
Fluoxetine	0.02
Sertraline	0.1
Mirtazapine	0.015
Paroxetine	0.025

Table 4: PDD

Drug	PDD (mg/day)
Amitriptyline	57.79
Imipramine	85.75
Escitalopram	12.30
Fluoxetine	18.43
Paroxetine	25
Sertraline	96.35
Mirtazapine	17.67

PDD: Prescribed daily dose

DISCUSSION

The present was a cross-sectional observational study. The introduction of newer classes of antidepressants has significantly transformed the pharmacologic treatment of depression. Compared with traditional antidepressant drugs, newer drug classes' offer improved tolerability to therapy with a faster onset of action and a high level of efficacy [8].

Demographic details of our study suggest that depression seems to affect the economically productive age group, similar to results obtained in a study conducted by Trivedi *et al*. in Northern India [5]. Gender distribution has shown that the occurrence of depression is more in females similar to results of a study done in northern India [1]. Literature also mentions that females suffer from depression more than males [9]. Biological, life cycle, hormonal and psychosocial factors (poverty and deprivation specifically in India) that women experience may be linked to women's higher depression rate [10]. However, a study was done by Grover *et al*. has shown equal sex distribution.

In our study, most of the patients were on monotherapy. This suggests that most of the patients responded to monotherapy and polytherapy is practiced infrequently similar to other studies in India [1,4,5]. Monotherapy also increases the compliance of the patients and decreases chances of drug interactions and side effects. In patients on monotherapy most frequently dispensed class of antidepressant was SSRI followed by TCA similar to other studies done in India and Italy [11,12]. Reason behind frequent use of SSRIs compared to TCAs is lesser side effects and better tolerability than the latter [8]. Escitalopram was the most common antidepressant prescribed overall and among the SSRI also. Amitriptyline was the second most commonly prescribed drug overall and most common among TCAs followed by imipramine. Sertraline was prescribed to the least number of patients. In a study done by Mishra *et al.,*

escitalopram (23.12%) was the most common drug prescribed as monotherapy similar to our study followed by fluoxetine (20.62%), sertraline (11.87%). In a multicenter study done by Grover et al. escitalopram was the most commonly prescribed antidepressant followed by sertraline and fluoxetine. However, a study done by Mohan et al. fluoxetine was the most common drug prescribed. While in a study done by Trivedi et al., duloxetine was the most common and paroxetine was the least common drug prescribed. Escitalopram and amitriptyline was the most common combination used as polytherapy. In a multicenter study, SSRI with TCA was the most common combination used [4], while in another study fluoxetine with bupropion was most commonly used combination [1]. A common use of escitalopram due to less drug interactions, side effects, better tolerability and overall favorable risk-benefit ratio than the other drugs. Fluoxetine, fluvoxamine, and paroxetine are associated with a higher propensity for drug interactions than other SSRI. Paroxetine is associated with higher incidence of discontinuation reactions [8].

Nine patients out of 160 old cases required change in drug therapy. Inadequate therapeutic response to the existing treatment is the most common reason for change in drug therapy. One patient developed dystonia while on treatment with imipramine and thus was shifted to escitalopram and fluoxetine therapy. Escitalopram was the most common drug used for the replacement.

A comparison of a drug's defined daily dose (DDD) with its PDD provides an insight into the actual use of the drug. Values of DDD according to WHO/ATC are escitalopram: 10, fluoxetine: 20, paroxetine: 20, sertraline: 50, amitriptyline: 75, imipramine: 100, and mirtazapine: 30. In our study PDD of escitalopram, sertraline and paroxetine were higher than DDD while for amitriptyline, imipramine, fluoxetine and mirtazapine it was lower than DDD. Reasons for lower PDD could be the side effects caused by these drugs. Furthermore, a significant number of the patients from our study were new cases and as TCAs are started at low dose due to their side effects and dose is titrated upward according to patient's response may be the reason for lower PDD [9]. Furthermore, PDD is variable and dependent on factors such as severity of illness, body weight, inter-ethnic differences in drug metabolism and prescribing culture of the health provider [3].

CONCLUSION

Drug utilization is an evolving process. Thus, continuous monitoring of prescription pattern helps in understanding changing trends in prescription pattern over time. Our study forms the basis for further studies at the study site. PDD from our study will help to compare changes in drug use over time.

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