ASSESSMENT OF DRUG PRESCRIBING PATTERNS IN PSYCHIATRY OUTPATIENT DEPARTMENT OF A TERTIARY CARE TEACHING HOSPITAL

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ABSTRACT

Newly diagnosed cases in psychiatry and prescription of psychotropic drugs among them have increased tremendously and study of the prescription pattern will assess the rationality of prevailing treatment practices. The objective of the study was to assess the prescribing pattern of psychotropic drugs at the psychiatry outpatient department (OPD) in a tertiary care teaching hospital. A prospective cross sectional and observational study was carried out in the OPD for six months. Psychopharmacological medication of the patients was collected in a standard data entry form and analysed according to the World Health Organization rational drug prescribing indicators. Descriptive statistics such as frequency, percentage, mean, and standard deviation were used wherever appropriate. A total of 100 OPD prescriptions were evaluated. The average number of drugs per prescription was 2.98 ± 1.3. Rational drug prescribing indicators were concluded as: The average percentage of drugs prescribed by generic name was 12.7%, while 35.9% of drugs were prescribed from list of essential drugs (EDL) and injections prescribed were high as 20.1%. Percentage of drugs prescribed as Fixed dose combination (FDC) was 7.38%. Depression was the most common psychotic disease (33%), while anxiety was second (22%), followed by Psychotic disorder (12%). Escitalopram (17.5%) was the most common antidepressant. Lorazepam (38%) was found to be most prescribed anxiolytic whereas Haloperidol (34.37%) was commonly used to treat psychotic disorder. The results indicate a considerable scope for improving the prescribing pattern of drugs in the psychiatry OPD department. The issue of number of injections prescribed need to be addressed since it might cause non-adherence in patients.
KEYWORDS: Prescribing Pattern, Psychopharmacological Medication, Rational Prescribing.

INTRODUCTION
Drug prescribing pattern varies distantly among different geographical areas and is influenced by patient characteristics, type of disease prevalent, cultural and environmental influences, socioeconomic status, availability of newer drugs and prescribing habit of physicians. 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. It is important to realize that inappropriate use of drugs represent a potential hazard to patients and an unnecessary expense. This necessitates a periodic review of pattern of drug utilization to ensure safe and effective treatment. To improve the overall drug use, especially in developing countries, international agencies like 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. [1]

Rational drug prescribing is defined as the use of the least number of drugs to obtain the best possible effect in the shortest period and at a reasonable cost.

The term rational medicine use includes the following criteria
• Appropriate indications that is, prescribing is based on sound medicinal considerations.
• Appropriate medicine, considering efficacy, safety, suitability for the patient and cost.
• Appropriate doses, administration and duration of treatment.
• Appropriate patient-that is, no contra indications exist, and the likelihood of adverse reactions is minimal.
• Correct dispensing, including appropriate information for patients about the prescribed medicines.
• Patient adherence to treatment.

Irrational or Irrational use is the use of medicines in a way that is not compliant with rational use as defined above. Irrational use of medicines is a major problem worldwide. WHO estimates that more than half of all medicines are prescribed, dispensed or sold inappropriately, and that half of all patients fail to take them correctly. The overuse, under use or misuse of medicines results in wastage of scarce resources and widespread health hazards.
Major Irrational Drug use examples include
- Polypharmacy
- Use of medicines when none is needed
- Wrong medicines used
- Ineffective medicines used with doubtful efficacy
- Unsafe medicines
- Under use of available effective medicines and so on.

The underlying factors of irrational use of medicines at various levels of the health system include
- Prescriber
- Dispenser
- Patient and community and some of the few factors.

The impact of irrational use of medications can be unexpected and adverse. Irrational use of medicines produces an impact on quality of medicines and medical care provided, antibiotic resistance, cost and psychosocial impact based on wide scale inappropriate use of medications.

Assessing the problem of irrational use
To address irrational use of medicines, prescribing, dispensing and patient use should be regularly monitored in terms of
- The types of irrational use, so that strategies can be targeted towards changing specific problems;
- The amount of irrational use, so that the size of the problem is known and the impact of the strategies can be monitored;
- The reasons why medicines are used irrationally, so that appropriate, effective and feasible strategies can be chosen.

Although psychiatric medications don't cure mental illness, they can often significantly improve symptoms. Psychiatric medications can also help make other treatments, such as psychotherapy, more effective. The best medications for you will depend on your particular situation and how your body responds to the medication.
Some of the most commonly used classes of prescription psychiatric medications include

- Antidepressants.
- Anti-anxiety medications.
- Mood-stabilizing medications.
- Antipsychotic medications.
- Psychotherapy
- Brain-stimulation treatments:
- Hospital and residential treatment programs:
- Substance abuse treatment:

**Lifestyle and home remedies include**

- Sticking to treatment plan.
- Avoiding alcohol and drug use.
- Staying active.
- Avoid making important decisions when symptoms are severe.
- Determine priorities.
- Learning to adopt a positive attitude.

Hence to understand this scenario in a tertiary care hospital this study was developed and initiated under the supervision of the consulting physician.

**Aim of the Study**

This study aims to assess the rationality of drug prescription based on WHO indicators, along with delineation of the various drugs used in psychiatric disorders and describe the current treatment practices.

**Ethical Clearance:** For obtaining the clearance certificate, an application along with study protocol, was the Methodology Department of pharmacy practice, N.E.T PC, NMCH & RC 25 which was submitted to the chairman of the institutional ethics committee of Navodaya college by issuing ethical clearance certificate.

**Design and Setting**

The study was carried out for a period of 6 months from April 2016 to October 2016 in Navodaya Medical College Hospital and Research Center, Raichur.
Type of Study: Prospective cross-sectional observational study
Sample Size: 100
Data Collection: Data were collected from the Psychiatric outpatient department using structured data entry form.

The inclusion criteria
Patients visiting psychiatric OPD with age group of 18 years and above

Exclusion criteria
- Patients who are admitted in the IP and emergency department
- Pregnant and lactating women.

MATERIALS AND METHODS
Study site: The study was carried out in out-patient department (OPD) of Psychiatry, NMCH & RC, Raichur, which is a 1000, bedded Multi-specialty tertiary care teaching hospital.

PHASE I: (Pilot study and literature review)
- Pilot study
- Obtaining permission from hospital authority
- Literature Survey
- Patient Selection
- Obtaining Clearance Certificate from Institutional Ethical Committee.
- Designing of Data Entry Form

A separate data entry format for incorporating outpatient details was designed (Annexure d) The format contains provision to enter the details such as age, gender, height, weight, consultant psychiatrist, OP number, patient details, address, reason for visit, trade name of drug, dose, frequency, number of days of treatment, class of drug, unit dose.

- Designing of WHO Drug Use Indicator Form
The standard WHO prescribing indicator form (Annexure e) was prepared which include
  - Mean number of drugs/prescription
  - Percentage of drugs prescribed by generic name
  - Percentage of prescriptions containing psychotropics drugs
PHASE II: Collection of data

The study was planned to investigate 100 patient records. When the patients arrived to the outpatient department, they were asked permission, verbally, so as to get a photo of their prescription or get a Xerox. A total of 100 prescriptions written by psychiatrists were collected and examined to record information about prescribing indicators using a predesigned form.

PHASE III: Analysis of data

All prescriptions obtained from POPD, dated from April 2016 to October 2016 after exclusion of the inpatients ones were collected and evaluated prospectively.

The data was entered into the computer and analyzed. Data was analyzed using Microsoft excel.

**Indicators were calculated based on the following ratios**

**Prescribing Indicators**

1. Average number of drugs per encounter = Total number of drugs prescribed / total number of encounters surveyed.

2. Percentage of drugs prescribed by generic name = (number of drugs prescribed by generic name / total number of drugs prescribed) x 100

3. Percentage of encounters with a psychotropics prescribed = (number of patient encounters during which a psychotropics was prescribed / total number of encounters surveyed) x 100

4. Percentage of encounters with an injection prescribed = (number of patient encounters during which an injection was prescribed / total number of encounters surveyed) x 100

5. Percentage of drugs prescribed from essential drugs list = (number of drugs prescribed from essential drugs list / total number of prescribed drugs) x 100.
RESULTS
The data collected from different patients are presented in figures (3-11) and Tables (1-2)

Fig. 3: Prescribing Pattern according to the gender (N=100).

In the study population of 100 patients, male patients are affected more, 59 (59 %) than the female patients 41 (41%)

Fig. 4: Prescribing Pattern according to the age group (N=100).

Among 100 prescriptions, more numbers of prescription were prescribed for the age group of 30-39 years {35 (35.%)} followed by 18-29 years {21 (21%)}, 40-49 years {20 (20%)}, 50-59 years {15 (15%)} and 60-69 years {9 (9%)}. 

Table. 1: WHO Standard Prescribing Indicators (N=100).

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Parameters</th>
<th>Value</th>
<th>Ideal value*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Average number of drugs per prescription</td>
<td>2.98</td>
<td>&lt;2</td>
</tr>
<tr>
<td>2.</td>
<td>Percentage of drugs prescribed by generic name</td>
<td>12.76%</td>
<td>100%</td>
</tr>
<tr>
<td>3.</td>
<td>Percentage of prescriptions with an injection prescribed</td>
<td>20.13%</td>
<td>&lt;10%</td>
</tr>
<tr>
<td>4.</td>
<td>Percentage of drugs prescribed from EDL</td>
<td>35.9%</td>
<td>100%</td>
</tr>
</tbody>
</table>

*WHO Specifications
The average number of drugs prescribed per encounter was 2.98. The percentage of drugs prescribed by generic name was 12.76%. Percentage of prescribed injections was 37% and that of drugs prescribed from national EDL was 35.9%.

Fig. 5: Prescribing trend according to therapeutic class (N=179).

Antidepressants (24.83%) were the most common prescribed psychotropic medication followed by Anxiolytics (21.14%), Anti psychotics (10.73%), Anti convulsants (4.02%), Sedatives/Hypnotics (1%) and CNS Stimulants (0.60%)

Fig. 6: Prevalence of Psychiatric Disorders (N=100).

Depression (33%), Anxiety (22%), Psychotic disorder (12%) were the most common disorders among the patients attending psychiatry OPD. The other common disorders were Schizophrenia (8%), Alcohol withdrawal syndrome (6%), Insomnia (4%), ADHD (3%).
Table 2: Prescribing prevalence of psychotropic drugs.

<table>
<thead>
<tr>
<th>Drug Class</th>
<th>Drug</th>
<th>No.</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anti-convulsants</td>
<td>Levetiracetam</td>
<td>3</td>
<td>25%</td>
</tr>
<tr>
<td>(n=12)</td>
<td>Topiramate</td>
<td>2</td>
<td>16.60%</td>
</tr>
<tr>
<td></td>
<td>Valproate Sodium</td>
<td>4</td>
<td>33.33%</td>
</tr>
<tr>
<td></td>
<td>Others</td>
<td>3</td>
<td>25%</td>
</tr>
<tr>
<td>Antidepressants</td>
<td>Lithium</td>
<td>4</td>
<td>5.40%</td>
</tr>
<tr>
<td>(n=72)</td>
<td>Escitalopram</td>
<td>13</td>
<td>17.56%</td>
</tr>
<tr>
<td></td>
<td>Sertraline</td>
<td>10</td>
<td>13.51%</td>
</tr>
<tr>
<td></td>
<td>Amitriptyline</td>
<td>9</td>
<td>12.16%</td>
</tr>
<tr>
<td></td>
<td>Others</td>
<td>11</td>
<td>14.86%</td>
</tr>
<tr>
<td>Antipsychotics</td>
<td>Risperidone</td>
<td>3</td>
<td>9.37%</td>
</tr>
<tr>
<td>(n=32)</td>
<td>Haloperidol</td>
<td>11</td>
<td>34.37%</td>
</tr>
<tr>
<td></td>
<td>Olanzapine</td>
<td>8</td>
<td>25%</td>
</tr>
<tr>
<td></td>
<td>Quetiapine</td>
<td>8</td>
<td>25%</td>
</tr>
<tr>
<td></td>
<td>Others</td>
<td>2</td>
<td>6.25%</td>
</tr>
<tr>
<td>Anxiolytics</td>
<td>Alprazolam</td>
<td>4</td>
<td>7.93%</td>
</tr>
<tr>
<td>(n=60)</td>
<td>Clonazepam</td>
<td>22</td>
<td>34.92%</td>
</tr>
<tr>
<td></td>
<td>Lorazepam</td>
<td>24</td>
<td>38.09%</td>
</tr>
<tr>
<td></td>
<td>Clozapine</td>
<td>4</td>
<td>7.93%</td>
</tr>
<tr>
<td>CNS stimulant</td>
<td>Methylphenidate</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Sedative/hypnotic</td>
<td>Zaleplon</td>
<td>1</td>
<td>50.50%</td>
</tr>
<tr>
<td>(n=2)</td>
<td>Zolpidem</td>
<td>1</td>
<td>50.50%</td>
</tr>
</tbody>
</table>

Escitalopram (17.5%) was the most common antidepressant prescribed. Lorazepam (38%) was the most prescribed anxiolytic whereas Haloperidol (34.37%) was used to treat psychotic disorder.

**DISCUSSION**

The different prescribing parameters and the distribution of different categories of drugs in the prescriptions analysed in this study provided an insight into the prescribing behaviour of the physicians in raichur city, karnataka. World Health Organization developed indicators to measure the degree of polypharmacy, the tendency to prescribe drugs by generic name and the overall level of use of antibiotics and injections. The degree to which the prescribing practice conformed to the essential drug list, formulary or standard treatment guideline were also measured by searching for the number of drugs prescribed from essential drug list available.

Average number of drugs used per prescription was 2.98 ±1.2, which was comparable to studies done by Piperva KG et al [13]. This shows that our study revealed negligible polypharmacy in patients and the reasons were justifiable. Polypharmacy can be a guiding factor for drug related issues such as drug - drug interactions as well adverse drug reactions.
The average number of Psychotropic drugs was 1.79 per prescription, showing that all the patients who presented to the POPD were prescribed an anti-psychotic. This finding matches with the other Indian studies (Table No 2) by Thakkar et al.\cite{8}

Percentage of drugs prescribed by generic name was 12.76% which is comparatively lower to those in other studies by Roopadevi HS et al, Rhode SB et al and Thakkar et al (54.2%, 28.75%, 70%).\cite{15,1} The expected value is 100% when it comes to this drug indicator. The need for promotion of prescribing drugs by generic names is important, as it prevents drug duplication as well as unbiased prescribing of drugs.

The percentage of prescription with an injection was 20.13%, which is higher than the other studies reviewed.\cite{1,8} Injectable drugs can lead to non-adherence in patients, as they require frequent travel to hospital or nursing homes along with the pain that is associated with the injectable drugs.

Prescribing using the essential drug list is important as it shows the prescribers capability of understanding the National Essential list, how updated his/ her knowledge is and how much of it is being applied in their prescribing pattern. Our results found that the number of drugs prescribed from National EDL was 35.9%, which is lower than figures reported (Table No 2) Percentage of drugs prescribed in Fixed dose combinations was 7.38% which is lower than other studies conducted by Thakkar et al.

Evaluation of the prescribing pattern revealed that Major depressive disorder (33%) was the most commonly affected mental illness in the population, which is relatively one of top 3 commonly occurring diseases in literatures used as evidence by prescribers.\cite{8} While in case of depressive disorder Anti-depressants (52.6%) were most commonly used. This is comparable to the study by Shankar P et al\cite{10}.

Analysis of the drug utilization revealed that Anti-depressants (24.8%) were the most commonly used category of drugs, followed by anxiolytics (21.1%) and antipsychotics (10.7%). This is comparable to the existing literatures such as by Rhode SB et al, Roopadevi et al.\cite{1,15} Anxiety comprised the second commonest psychotic ailment (22%) followed by Psychotic disorder (12%). Lorazepam (38%) was the most prescribed anxiolytic whereas Haloperidol (34.37%) was used to treat psychotic disorder. These results tally with existing literatures such as Rhode SB et al, Roopadevi HS et al and Shankar P et al.\cite{1,15,10}
Table. 3: Comparison of prescribing indicators obtained in current study with other Indian studies.

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Average number of drugs</td>
<td>2.98</td>
<td>2.07</td>
<td>2.1</td>
<td>2.01</td>
</tr>
<tr>
<td>2.</td>
<td>Average number of psychotropic drugs prescribed</td>
<td>1.79 (61%)</td>
<td>1.9</td>
<td>2.1</td>
<td>1.79</td>
</tr>
<tr>
<td>3.</td>
<td>% of drugs prescribed according to generic names</td>
<td>12.8</td>
<td>54.9%</td>
<td>28.7%</td>
<td>76%</td>
</tr>
<tr>
<td>4.</td>
<td>% of Drugs prescribed from Essential drug list</td>
<td>35.9%</td>
<td>70.4%</td>
<td>38.6%</td>
<td>100%</td>
</tr>
<tr>
<td>5.</td>
<td>% of encounters with Injectable drugs prescribed</td>
<td>37%</td>
<td>2.4%</td>
<td>3.3%</td>
<td>2.2%</td>
</tr>
<tr>
<td>6.</td>
<td>% of prescriptions containing psychotropic FDCs</td>
<td>7.38%</td>
<td>21%</td>
<td>20.58%</td>
<td>22%</td>
</tr>
</tbody>
</table>

CONCLUSION

We conclude from the present study that, the average number of drug per prescription was higher than that of recommended by WHO. The drugs prescribed in generic names were remarkably lower. Majority of the prescribed drugs were not in accordance with the WHO model essential list. The results indicate a considerable scope for improving the prescribing pattern of drugs in the psychiatry outpatient department. Irrational prescribing can be avoided by sticking to the ideal prescription writing. Depression (33%) was commonest psychotic ailment. Escitalopram (17.5%) was the most common antidepressant prescribed for its treatment. Percentage of drugs prescribed as Fixed dose combination (FDC) was 7.38%. The results indicate a considerable scope for improving the prescribing pattern of drugs in the psychiatry OPD department. The issue of number of injections prescribed need to be addressed.

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REFERENCES


