ANALYSIS OF PSYCHOTROPICS POLYPHARMACY AND PREVALENCE OF NON-PSYCHOTROPICS PRESCRIBED IN OUTPATIENT PSYCHIATRY UNIT OF A TERTIARY CARE TEACHING HOSPITAL

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ABSTRACT

BACKGROUND

The prevalence of polypharmacy is ever increasing contributing to irrationality in prescription. Prescription of more than two psychotropes is considered psychotropic polypharmacy. Other medications which are often co-prescribed with psychotropics (anticholinergics, anti-Parkinson’s and anti-dementia medications) often contribute to polypharmacy in psychiatry clinical practice.

METHODS

A retrospective prescription analysis of all the prescription deposited in dispensary run by psychiatry department of tertiary care centre was undertaken. The analysis focused on the non-psychotropes prescribed along with estimation of prevalence of polypharmacy.

RESULTS

The non-psychotropes were prescribed at an average of 0.56 per prescription per patient. An average of 2.25 medicines were prescribed per patient. The anticholinergic trihexyphenidyl tops the chart of non-psychotropes prescribed.

CONCLUSIONS

The study highlights the prevalence of psychotropic polypharmacy and contribution of non-psychotropes to the polypharmacy in the prescribed prescriptions. Hence the non-psychotropes prescribed must be restricted for the practicing rational drug therapy.

KEYWORDS

Psychotropics, Non-Psychotropics, Polypharmacy, Rational Drug Therapy

switching over of medications and synergistic effect.\textsuperscript{1-6} Antipsychotics are often used in combination for treating schizophrenia as most commonly used antipsychotic medicines lack effect on negative symptoms and studies suggest up to 15-39% of schizophrenics experience a remission on monotherapy.\textsuperscript{4,6} But, most experts prefer monotherapy over polypharmacy to avoid demerits of polypharmacy like increased incidence & severity of adverse drug reactions, toxicity, drug-drug interaction, medication errors, increased cost, pill count and non-compliance.\textsuperscript{1,7}

World Health Organisation (WHO) has opined polypharmacy to be one of the irrational prescribing patterns along with under prescribing and extravagant prescribing.\textsuperscript{9,10} WHO defines rational drug therapy as the use of appropriate medication which is efficacious, proved safe & cost effective and is administered to appropriate indication at the right dose, formulation and at right intervals for diagnosis, prevention, mitigation and treatment of disease.\textsuperscript{6,10} Reports suggest that in developing countries up to 60% of medicines prescribed in public facilities and 70% of the medicines prescribed in private healthcare facilities are inappropriately prescribed and contribute significantly to morbidity and mortality.\textsuperscript{11} Hence tackling polypharmacy at all levels is vital for rationalizing drug therapy.

Anticholinergics are often used to manage the extrapyramidal adverse effects seen with antipsychotic medicines usage.\textsuperscript{12} Other medications like psychostimulants, anti-Parkinson's and anti-dementia medications are often co-prescribed with psychotropic drugs.\textsuperscript{13} These co-prescribed medicines often contribute to polypharmacy in psychiatry clinical practice. Although a large number of studies have been conducted on the prescription pattern of psychotropics, but the same on non-psychotropics which are often co-prescribed is absent. Hence the present study was planned to study the prescription pattern of non-psychotropics prescribed in outpatient department of psychiatry unit of a tertiary teaching hospital.

**METHODS**

This was a retrospective analysis of the prescriptions deposited in the dispensary run by the psychiatry unit of a tertiary teaching hospital. After obtaining approval from the institutional ethics committee the prescription deposited from 01\textsuperscript{st} October to 31\textsuperscript{st} December 2017 were considered for the study. All the prescription deposited in this period was collected as the dispensary was solely restricted to those attending the outpatient department of psychiatry of this tertiary care centre.

The prescriptions were analysed with special regards to the non-psychotropics prescribed. Psychotropics are those medicines which are used for the management of different mental disorders and are usually classified as antipsychotics, antidepressants, mood stabilizers, anxiolytics and sedative hypnotics. The prescribed medicines were classified under the above-mentioned headings as mentioned in the standard textbooks of pharmacology. Those prescribed medicines not mentioned in any of the above classifications were grouped as non-psychotropics.

All the prescriptions were analysed for the following parameters (a) Average number of the drugs per prescription, (b) Average number of the psychotropic drugs per prescription, (c) Average number of the non-psychotropic drugs per prescription & (d) Percentage of polypharmacy (prescribing 4 or more of all medicines or 2 or more psychotropics).\textsuperscript{9,14} All the data were recorded in Microsoft excel sheet and were analysed.

**RESULTS**

A total of 3150 prescriptions were included in the study. In these 3150 prescriptions a total of 7090 medicines were prescribed including psychotropics, amounting to an average of 2.25 medicines per prescription. Out of 7090 medicines prescribed, 5329 medicines were regarded as psychotropics, which amount to an average of 1.69 psychotropes per prescription. The remaining 1761 medicines were non-psychotropics which amounts to an average of 0.56 per prescription. (Table 1)

In our study results 309 prescriptions out of 3150 prescriptions carried four medicines, 95 prescriptions with five medicines, 22 with six medicines, 5 prescriptions with seven medicines and two prescriptions with eight medicines. In the analysis of polypharmacy, a total of 433 prescriptions contain 4 or more medicines, constituting 13.75% of the total prescriptions. Out of these 433, 141 prescriptions contain 2 or more psychotropic medicines, constituting 4.48% of all the prescriptions. (Table 2, Figure 1)

Amongst the non-psychotropics prescribed the anticholinergic drug trihexyphenidyl tops the chart with 532 prescriptions, amounting to 30.21% of all the non-psychotropics prescribed. The other non-psychotropics prescribed include Propranolol, Donepezil, promethazine, multivitamins, Naltrexone, Baclofen, gabapentinoids-Pregabalin & Gabapentin, Pantoprazole, Flunarizine, Sildenafil, Memantine, Clonidine, Rivastigmine, folic acid, Thyroxin, Modafinil, Naproxen, Sumatriptan, Isspaghula husk, Pramipexole, Paracetamol and others. (Table 3)

The medicines which were prescribed in one or two prescriptions were included in the broad heading of others, which includes Amlodipine, Losartan, Atorvastatin, Atendazole, Telmisartan, Atenolol, Diclofenac, Digoxin, Montelukast, Methyphenidate, Lactulose, Vitamin E, Amantadine, Piracetam, Cetirizine and Oxybutynin.

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<tr>
<th>Sl. No.</th>
<th>Drug Use Indicators</th>
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<tbody>
<tr>
<td>1.</td>
<td>Total no. of prescriptions selected for study</td>
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<tr>
<td>2.</td>
<td>Total no. of medicines prescribed</td>
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<td>3.</td>
<td>Average no. of medicines per prescription</td>
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<td>4.</td>
<td>Total no. of psychotropics amongst the prescribed medicines</td>
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<tr>
<td>5.</td>
<td>Total no. of non-psychotropics amongst the prescribed medicines</td>
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<td>6.</td>
<td>Average no. of the psychotropes per prescription</td>
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<td>7.</td>
<td>Average no. of the non-psychotropics per prescription</td>
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**Table 1. Prescription Analysis**
DISCUSSION

In our study an average of 2.25 medicines were prescribed per prescription. This is higher than the recommended reference of value by WHO of <2.15 But, our study results appear to be better than Ofori-Asenso R, et al (2016), who in their systematic analysis of various prescribing indicators at different primary health care centres of African regions concluded that an average of 3.1 medicines were prescribed.15 On similar lines study of prescribing behaviour in a teaching hospital of Maharashtra by Singh G, et al (2016) came out with an average of 3.41 medicines prescribed per encounter with a patient.16

In contrary to our results Desalegn AA (2013) in their analysis of prescriptions utilizing WHO prescribing indicators at a teaching hospital in South Ethiopia reported an average of 1.9 drugs prescribed per encounter.17 In our study only 13.75% of all prescriptions contains four or more medicines constituting polypharmacy. Hence the prevalence of polypharmacy in our centre is at the lower end of the prevalence reported globally at 13-90%.6 Our results indicate that although average number of medicines prescribed being higher than prescribed norms by WHO and the practice of polypharmacy do exists. But, the situation is not as bad as other reported studies and with due deliberations it can be further reduced.

The average number of psychotropics prescribed per patient encounter was 1.69. These results are similar to the prescription analysis of psychotropic drugs by Thakkar KB, et al (2013), who reported an average of 1.79 psychotropes per prescription.18 But our study results demonstrate that the number of prescriptions carrying > 2 psychotropes to be 664, constituting 21.07% of all the prescriptions. The results of our study are in line with results of Mojtabai R, et al (2010) who reported that prescriptions with more than two psychotropics increased from 16.9% in 1996-97 to 33.2% in 2005-2006.19 But in contrast to our results Aroke HA, et al (2019) in their study to analyse the prevalence of psychotropic polypharmacy in adults of USA with cancer reported a psychotropic polypharmacy prevalence of 7.4%, with a highest prevalence of 14.45% in patients with lung cancer.1 This highlights the existing psychotropic polypharmacy in our centre which has to be reduced at the earliest by the practice of rational drug therapy.

In our study the average number of non-psychotropes prescribed per patient encounter is 0.56. The most commonly prescribed non-psychotropic was trihexyphenidyl. Trihexyphenidyl is an anticholinergic drug often used by psychiatrists for management of extrapyramidal side effects of antipsychotic drugs.20 21 Reports suggest that it is often misused and also prescribed off label for bipolar disorders, obsessive compulsive disorders and schizophrenia.20 21 As brought out by our study trihexyphenidyl constitutes upto 30% of all non-psychotropes prescribed and constitutes 16.89% of all prescriptions. Hence a reduction in the use of trihexyphenidyl by strict regulation is the need of the hour to reduce the average number of medicines encountered per patient visit and also to prevent its misuse.

Hence as brought out by our study there is a need to check not only on the prescription of psychotropics but also on the non-psychotropics in practice of clinical psychiatry to help reduce the burden of polypharmacy on patients and to rationalize the drug therapy. The limitations of our study were- it was a retrospective study and no randomization was followed. Hence a properly randomized prospective study will clearly bring out the role of non-psychotropics to the burden of polypharmacy. More studies should be carried out to highlight the drug-drug interactions due to the use of non-psychotropics.
CONCLUSIONS
The study clearly highlights the prevalence of psychotropic polypharmacy and is a hurdle to establish rational drug therapy in clinical practice. There is always a scope to improve the same by avoiding inappropriate prescribing. Most definitions of polypharmacy highlight the number of medicines rather than taking view of complete clinical picture. Hence more specific parameters like Beer’s criteria and Medication Appropriateness Index must be considered in future. This study has provided an insight to the problem area of non-psychotropics prescribed and further studies to consolidate the same is needed.

REFERENCES