International Journal of Research in Medical Sciences
Mudhaliar MR et al. Int J Res Med Sci. 2017 Apr;5(4):1612-1616
www.msjonline.org
pISSN 2320-6071 | eISSN 2320-6012
DOI: http://dx.doi.org/10.18203/2320-6012.ijrms20171274

Original Research Article

Psychotropic drug utilization in psychiatric outpatient department of a tertiary care teaching hospital in India

Mohanraj Rathinavelu Mudhaliar[1,2], Ishrar Shaik Mohammad Ghouse[2], Priyanka Sadubugga[1,3]*, Swaroop Reddy Narala[3], Vidyasagar Chinnakotla[3], Prabhakar Yendluri[4]

[1]Drug Information Pharmacist, Poison and Drug Information Centre, Department of Pharmacy Practice, RDT Hospital, Bathalapalli, Anantapuramu, Andhra Pradesh, India
[2]Assistant Professor, Division of Pharmacy Practice, Raghavendra Institute of Pharmaceutical Education and Research, Anantapuramu, Andhra Pradesh, India- 515721
[3]Resident-Intern, Doctor of Pharmacy Program, Division of Pharmacy Practice, Raghavendra Institute of Pharmaceutical Education and Research, Anantapuramu, Andhra Pradesh, India- 515721
[4]Professor and Head, Department of Psychiatry, Government Medical College and Hospital, Anantapur, Andhra Pradesh, India

Received: 12 February 2017
Accepted: 09 March 2017

***Correspondence:**
Priyanka Sadubugga,
E-mail: moley4u@rediffmail.com

ABSTRACT

Background: Although psychotropic medications have had a remarkable impact on psychiatric practice that legitimately can be called revolutionary, their utilization and consequences on real life effectiveness and safety in actual clinical practice need continuous study.
Methods: The current retrospective study of six months' duration was designed to assess the utilization of antipsychotics and its prescribing pattern in a tertiary care hospital of south India, which included prescriptions of patients suffering from a psychiatric illness with at least one psychotropic drug of all ages and both sexes.
Results: Out of 150 cases reviewed, 46% were of schizophrenia, where male (60.67%) at higher incidence of psychiatric illness, and maximum patients were under the age group of 29-39 years (54.67%). In present study of 355 prescribed drugs 72.67% were psychotropic medications. As per World Health Organization/International Network for Rational Use of Drugs (INRUD) drug use indicators average number of drugs per prescription (2.37%), average number of psychotropic drugs per prescription (1.72%), psychotropic drugs prescribed as Fixed Dose Combinations (FDCs) was 26.36%, and percentage of drugs prescribed by generic name (91.08%). In our study, 48.09% of psychotropic drugs were utilized in the treatment of schizophrenia, diazepam (17.06%) was the only psychotropic medication distributed in the management of all three observed psychiatric disorders and the study showed a higher utilization of psychotropic drugs as FDCs (25.98%) in the management of schizophrenia.
Conclusions: The study advocated an overall rational utilization of psychotropic drugs with a fewer deviations due to socio-economic status of patients and prescription practices of healthcare providers.

Keywords: Drug utilization, INRUD, Prescribing pattern, Psychotropic medications, Retrospective study, WHO indicators

INTRODUCTION

Mental illness is associated with high levels of health service utilization and associated costs, and in developing countries these costs are mostly paid by the patient.[1] Psychiatric disorders form an important public health priority.[2,3] Of the top ten health conditions contributing to the disability adjusted life years (DALYs), four are

psychiatric disorders.[4] The rapidly expanding field of psychopharmacology is challenging the traditional concepts of psychiatric treatment and research, and is constantly seeking new and improved drugs to treat psychiatric disorders. In this way, psychiatrists are continuously exposed to newly introduced drugs that are claimed to be safe and more efficacious.[5] Although psychotropic medications have had a remarkable impact on psychiatric practice that legitimately can be called revolutionary, their utilization and consequences on real life effectiveness and safety in actual clinical practice need continuous study.[6]

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".[7] The increased interest in DUR has resulted from recognition of the virtual explosion in the marketing of new drugs, the wide variations in the patterns of drug prescribing and consumption, and the increasing concern about the cost of drugs.[8]

For the treatment of psychiatric disorders, a wide array of psychotropic drugs is available.[9] During the past two decades, the development of newer drugs like Selective Serotonin Reuptake Inhibitors (SSRIs) and atypical anti-psychotics have drastically changed the drug therapy protocols. There are very few studies that have evaluated the antipsychotic prescription patterns from India. The data available has come from public sector hospitals and represents the prescription pattern specific to that center.[10] In this background, present study was designed to outline and assess the utilization of antipsychotics and its prescribing pattern in a tertiary care teaching hospital of India.

METHODS

Study design and settings

A retrospective cross-sectional study was conducted in a tertiary care teaching hospital of South India.

Study period

The study was performed for a period of 6 months from June 2016 to November 2016.

Ethical approval

The ethical approval was obtained from the Institutional Review Board before the commencement of the study (RIPER/IRB/2016/009).

Selection criteria

Prescriptions of patients suffering from a psychiatric illness of all ages and both sexes, with at least one psychotropic drug were selected.

Sample size

One hundred fifty prescriptions were assessed for retrospective drug utilization study from the hospital medical registries of medical record department.

Study procedure

The data of patients attending out-patient department of psychiatry unit, during the study period was collected from hospital registries of MRD, the information's pertaining to patients' demography, approximate date of diagnosis (in old cases) and definite date of diagnosis (in new cases), family and social histories, food habits, educational qualification, occupation, income, and life style were obtained and documented.

Furthermore, prescription information's like number of drugs, names (both generic/brand) of drugs, FDCs prescribed, dose, dosage form, frequencies and duration of therapy was documented. The outcome of the current DUS on psychotropic medications was assessed as per WHO-INRUD drug use indicators.

Statistical analysis

All the obtained data were entered into a personal computer on Microsoft Excel Sheet and analyzed using GraphPad Prism 7. The variables were characterized by their frequencies, and differences between groups were assessed using Chi-square tests. The statistically significant level was set at <0.05 with a confidence interval of 95%.

RESULTS

The study was based on a sample of 150 participants suffering from psychiatric illness of all ages and both genders, prescribed with at least one psychotropic drug.

Characteristics of study participants and pattern of psychiatric disorders

Out of 150 cases reviewed 69 (46%) cases were of schizophrenia, the study showed a higher incidence of psychiatric illness in male (60.67%) and maximum patients were under the age group of 29-39 years (54.67%), the results of which are summarized in Table 1 (Demography and distribution of psychiatric disorders in age groups and gender).

Pattern of psychotropic drugs utilization as per the WHO/INRUD Drug use indicators

In present study, 150 prescriptions contained 355 drugs, out of which psychotropic drugs were 258, the prescriptions were thoroughly assessed as per WHO/INRUD drug use indicators and reported in Table 2 (Assessment of prescriptions as per WHO/INRUD drug use indicators).

Psychotropic drugs utilization in patients attending the psychiatric outpatient department

In present retrospective analysis, 48.09% of psychotropic drugs were utilized in the treatment of schizophrenia, 31.39% and 20.55% of psychotropic drugs were used in management of mood and anxiety disorder respectively, results of which are summarized in Figure 1 [Percentage of drug utilization in psychiatric disorders (n=150)].

Table 1: Demography and distribution of psychiatric disorders in age groups and gender.

	Age distribution (years)				Gender distribution	
Psychiatric disorder	18-28	29-39	40-50	>50	Male	Female
Schizophrenia (n=69)	8	43	13	5	46	23
Mood disorder (n=52)	9	24	15	4	28	24
Anxiety disorder (n=29)	9	15	3	2	17	12
Total (n=150)	26	82	31	11	91	59

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

Average number of drugs per prescription	2.37%
Average number of psychotropic drugs per prescription	1.72%
Psychotropic drugs as FDCs	26.36%
Percentage of drugs prescribed by generic name	91.08%
Prescription comprising of injectable preparations	1.94%
Percentage of the drugs supplied from hospital pharmacy	89.15%

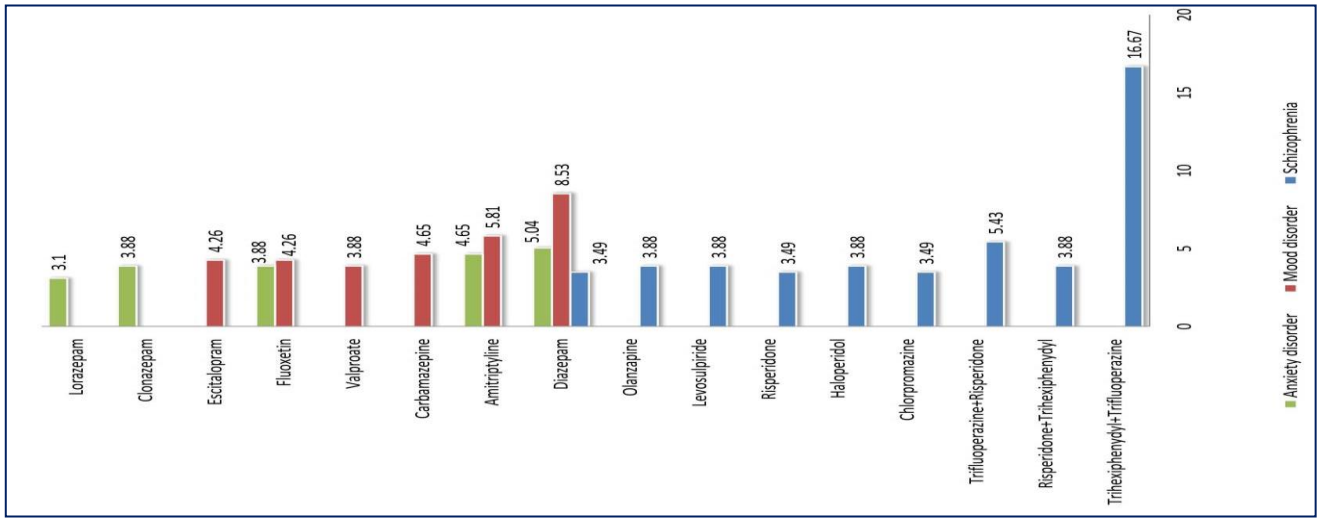

Figure 1: Percentage of drug utilization in psychiatric disorders (n=150).

DISCUSSION

The current retrospective study of six months duration on psychotropic drugs utilization, in a psychiatry outpatient department showed a higher incidence psychiatric illness in male (60.67%), findings of which are similar to studies performed in Karnataka, Central India and Assam.[11-13] In present study, schizophrenia was the most reported psychiatric disorder results of which supports the work of other studies performed Assam and Eastern India.[13,14] The procreant age group of 29-39 years reported for the majority of all psychiatric disorder findings of which are similar to studies presented at Mumbai and Jamnagar, India.[15,16] In present study the average number of psychotropic drugs per prescription was 1.72%, results of which are similar to studies presented at Mumbai and lower than studies of central India, pondichery and Kolkata and higher than study of Eastern India.[12,14,15,17,18]

The most commonly prescribed FDCs were trifluoperazine combination with trihexiphenydyl (16.67%) in management of schizophrenia, findings of which is similar to study reported in Mumbai, Maharashtra, india.[15]

In present study, psychotropic drugs prescribed by generic name accounts for 91.08%, findings of which are same to study reported in eastern India and higher than findings of central India, Karnataka and Mumbai, Maharashtra, india.[12,14,15,19]

Drug use pattern observed in all three psychiatric disorders

Diazepam was the only psychotropic medication distributed in the management of all three psychiatric disorders (schizophrenia, mood and anxiety disorders) which accounts for 17.06% the total psychotropic drug utilized, findings of which is similar to study reported in Mumbai, Maharashtra, india.[15] Efficacy data support the use of diazepam in treating prodromal and early warning signs of symptom exacerbation in schizophrenia.[20]

Drug use pattern observed in two psychiatric disorders (mood and anxiety disorders)

Amitriptyline and fluoxetine were the two psychotropic medications distributed in the management of two psychiatric disorders (mood and anxiety disorders) which accounts for 10.46% and 8.14% the total psychotropic drug utilized respectively. Second-generation antidepressants are safe, effective and well tolerated treatments for major depressive disorder (MDD) in adults.[21]

Drug use pattern observed in schizophrenia

The study showed a higher utilization of psychotropic drugs as FDCs in the management of schizophrenia, findings of which is similar to study reported in Mumbai[15]and more than findings reported in Karnataka, India.[19] On monotherapy, psychotropic drugs utilized in the management of schizophrenia from highest to lowest was found to be haloperidol (3.88%) = levosulpiride (3.88%)=olanzapine (3.88%) >chlorpromazine (3.49%)=risperidone (3.49%)= diazepam (3.49%). Psychotropic drugs utilized as FDCs in the management of schizophrenia from highest to lowest was found to be trihexiphenydyl + trifluoperazine (16.67%) > trifluoperazine + risperidone (5.43%) > risperidone + trihexiphenydyl (3.88%).

Drug use pattern observed in mood disorder

On monotherapy, psychotropic drugs utilized in the management of mood disorder from highest to lowest was found to be diazepam (8.53%) > amitriptyline (5.81%) > carbamazepine (4.65%) > fluoxetin (4.26%) = escitalopram (4.26%) > valproate (3.88%).

Drug use pattern observed in Anxiety disorder

On monotherapy, psychotropic drugs utilized in the management of anxiety disorder from highest to lowest was found to be diazepam (5.04%) > amitriptyline (4.6%) > fluoxetine (3.88%) = clonazepam (3.88%) > lorazepam (3.1%).

CONCLUSION

In conclusion, the study advocated an overall rational utilization of psychotropic drugs and pattern of prescribing with a fewer deviations from standard guidelines due to socio-economic conditions of patients, and individual healthcare providers attitude and perception on adhering towards standard guidelines while developing drug therapy regimen.

ACKNOWLEDGEMENT

Authors would like to thank all the healthcare professionals of Government Medical College and Hospital, Anantapur, Andhra Pradesh, India and the members of Institutional Review Board (IRB) of Raghavendra Institute of Pharmaceutical Education and Research RIPER, Anantapur, Andhra Pradesh, India for their constant support and guidance.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee (RIPER/IRB/2016/009)

REFERENCES

1. Sharma P, Das S, Deshpande S. An estimate of the monthly cost of two major mental disorders in an Indian metropolis. Indian J Psychiatry. 2006;48:143-8.
2. World Health Organization. The World Health Report 2001- Mental Health: New understanding, new hope. Geneva; 2001. Available from: http://www.who.int/whr/2001/en/ (cited 2012 Sep 5).
3. Math SB, Chandrashekar CR, Bhugra D. Psychiatric epidemiology in India. Indian J Med Res. 2007;126(3):183-92.
4. Murthy R. Mental Health Programme in the 11th five-year plan. Indian J Medl Res. 2007;11:707-12.
5. The ESEMeD/MHEDEA 2000 investigators. Psychotropic drug utilization in Europe: Results from the Europe Study of the Epidemiology of Mental Disorders (ESEMeD) project. Acta Psychiatr Scand. 2004;109:55-64.
6. Baldessarini RJ, Tarazi FI. Pharmacotherapy of psychosis and mania. In: Hardman JG, Limbird LE, Gilman AG, eds. Goodman and Gilman's The Pharmacological basis of therapeutics. 11th ed. New York: McGraw-Hill; 2006:429-54.
7. WHO International Working Group for Drug Statistics Methodology. Introduction to drug utilization research. Geneva: WHO Collaborating Centre for Drug Utilization Research and Clinical Pharmacology; 2003. Available from: http://www.whocc.no/filearchive/publications/drug_utilization_research.pdf (cited 2012 Nov 1).

8. Strom BL. Pharmacoepidemiology. 4th ed. England: John Wiley and Sons; 2005.
9. Brunton L, Lazo J, Parker K. Goodman and Gilman's the pharmacological basis of therapeutics. 11th ed. McGraw-Hill publication; 2006:401-500.
10. Rode S, Salankar H, Verma P. Pharmacoepidemiological survey of schizophrenia in Central India. Int J Res Med Sci. 2014;2(3):1058-62.
11. Joel JJ, Shastry CS, Rao S. Cost-analysis of psychotropic drugs prescribed for the patients with schizophrenia in a university teaching hospital. Pharm Innov J. 2015;4(1):67-70.
12. Sonali B. Rode, Harsh V. Salankar, Pravin R. Verma. Antipsychotic drug prescribing pattern in tertiary care teaching hospital. EJPMR, 2015;2(5):369-78.
13. Paul PK, Konwar M, Das S. To study the prescribing pattern of antipsychotic drugs in a tertiary care hospital of Assam. Int J Pharm Pharm Sci. 2014;6(4):435-7.
14. Ghosh S, Bhattacharyya S, Dalai CK. Antipsychotic prescribing pattern in a tertiary care hospital of eastern India. J Drug Del Therap. 2013;3(4):38-42.
15. Thakkar KB, Jain MM, Billa G, Joshi A, Khobragade AA. A drug utilization study of psychotropic drugs prescribed in the psychiatry outpatient department of a tertiary care hospital. J Clin Diagn Res. 2013;7(12):2759-64.
16. Piparva KG, Parmar DM, Singh AP, Gajera MV, Trivedi HR. Drug utilization study of psychotropic drugs in outdoor patients in a teaching hospital. Indian journal of psychological medicine. 2011 J;33(1):54-8.
17. Lahon K, Shetty H, Paramel A, Sharma G. A retrospective drug utilization study of antidepressants in the psychiatric unit of a tertiary care hospital. J Clin Diagn Res. 2011;5(5):1069-75.
18. Mukherjee S, Sen S, Chatterjee S. Prescribing pattern of psychotropic medications in psychiatry outpatients at a tertiary care teaching hospital in India: a prospective cross-sectional study. Int J Hosl Res. 2014;3(3):113-22.
19. Swamy MK, Wagle L, Giri V. Drug utilisation pattern of psychotropic drugs in psychiatric outpatient department of rural tertiary care teaching hospital. Int J Pharm Sci Res. 2016;7(8):3497-08.
20. Carpenter WT Jr, Buchanan RW, Kirkpatrick B, Breier AF. Diazepam treatment of early signs of exacerbation in schizophrenia. Am J Psychiatry. 1999;156(2):299-303.
21. Lam RW, Kennedy SH, Grigoriadis S, McIntyre RS, Milev R, Ramasubbu R, et al. Canadian Network for Mood and Anxiety Treatments (CANMAT) Clinical guidelines for the management of major depressive disorder in adults.: III. Pharmacotherapy. J Affective Disorders. 2009;117:S26-43.

Cite this article as: Mudhaliar MR, Ishrar SMG, Sadubugga P, Narala SR, Chinnakotla V, Yendluri P. Psychotropic drug utilization in psychiatric outpatient department of a tertiary care teaching hospital in India. Int J Res Med Sci 2017;5:1612-6.