Research Article **CODEN: IJRPJK** **ISSN: 2319 – 9563**

International Journal of Research in Pharmaceutical and Nano Sciences

Journal homepage: **www.ijrpns.com**

STUDY OF UTILIZATION PATTERN OF BENZODIAZEPINE'S AT A PRIVATE CORPORATE HOSPITAL

K. Jayaprakash[*1]

[1*]Department of Pharmacy Practice, Kuniyamuthur, Coimbatore, Tamilnadu, India.

ABSTRACT

The study was conducted in the Psychiatry in-patient and out-patient department of Private corporate hospital, Tamil Nadu. Duration of study was eleven months (March 2012 to January 2013). Study was conducted in 300 patients who visited the Psychiatry indoor and outdoor unit during March 2012 to January 2013. A modern methodological approach enables comparison of the data from Tamil Nadu studies with the data from other states, thus pointing out certain prescribers' habits and or patients' preferences that are characteristic for our milieu.

KEY WORDS

Benzodiazepine, Psychiatric drug and Private corporate hospital.

Author for Correspondence:

K. Jayaprakash,

Department of Pharmacy Practice,

Kuniyamuthur, Coimbatore, Tamilnadu, India.

Email: jpcoxandkings@gmail.com

INTRODUCTION

Over the last decade in Tamil Nadu several drug utilization studies on the usage of psychiatric drugs have been conducted. These studies have addressed certain major issues: drug use patterns, prescribing behavior, gaps between guidelines and actual utilization and factors responsible for poly pharmacy.

Benzodiazepine dependence or benzodiazepine addiction is when one has developed three or more of either tolerance, withdrawal symptoms, drug seeking behaviors, continued use despite harmful

effects, and maladaptive pattern of substance use. Benzodiazepine dependence develops with long term use, even at low therapeutic doses[1] even without the described dependence behavior. Dependence and misuse of benzodiazepines have been of concern since 2002. Based on findings in the US from the Treatment Episode Data Set (TEDS), an annual compilation of patient characteristics in substance abuse treatment facilities in the United States, admissions due to "primary tranquilizer" (including, but not limited to, benzodiazepine-type) drug use increased 79% from 1992 to 2002.

The signs and symptoms of benzodiazepine dependence include feeling unable to cope without the drug, unsuccessful attempts to cut down or stop benzodiazepine use, tolerance to the effects of benzodiazepines, and withdrawal symptoms when not taking the drug. Some withdrawal symptoms that may appear include anxiety, depressed mood, depersonalization, derealisation, sleep disturbance, hypersensitivity to touch and pain, tremor, shakiness, muscular aches, pains, twitches, and headache[2]. Tolerance develops rapidly to the sleep-inducing effects of benzodiazepines but takes several months to develop to the anxiolytic effects. The anticonvulsant and muscle-relaxant effects last for a few weeks before tolerance develops in most individuals. Tolerance results in a desensitization of GABA receptors and an increased sensitization of the excitatory neurotransmitter system, glutamate such as NMDA glutamate receptors. These changes occur as a result of the body trying to overcome the drug's effects[3]. Animal studies have shown that repeated withdrawal from benzodiazepines leads to increasingly severe withdrawal symptoms, including an increased risk of seizures; this phenomenon is known as kindling. Kindling phenomena are well established for repeated ethanol (alcohol) withdrawal; alcohol has a very similar mechanism of tolerance and withdrawal to benzodiazepines, involving the GABA, NMDA, and AMPA receptors[4]. Long term use of benzodiazepines leads to increasing physical and mental health problems, and as a result, discontinuation is recommended for many long-term users. The withdrawal syndrome from benzodiazepines can range from a mild and short-lasting syndrome to a prolonged and severe syndrome. Due to the risk of developing tolerance, dependence, and adverse health effects, such as cognitive impairment, benzodiazepines are indicated for short-term use only - a few weeks, followed by a gradual dose reduction[6-8]. In Italy, the gold standard for treatment of high-dose benzodiazepine dependency is 8–10 days of low dose, slow infusion of flumazenil[9]. In our study we estimated the usage pattern of benzodiazepines in different diseases and their drawbacks in a private hospital.

MATERIAL AND METHODS

Ethical Considerations

The study protocol, along with the informed consent form (in Tamil and English) was submitted to the Institutional Ethics Committee, Private corporate hospital, Tamil Nadu for approval. Subject recruitment commenced only after such approval was obtained in writing. Informed written consent was taken from each participant. Illiterate patients gave their left thumb impression instead of signature in the presence of an appropriate witness.

Study Setting

The study was conducted in the Psychiatry in-patient and out-patient department Private corporate hospital, Tamil Nadu.

Study Duration

The duration of study was eleven months (March 2012 to January 2013).

Study Design

The current study was designed as a Cross sectional and unicentric drug utilization study.

Subject Selection Criteria

The subjects who had willingly participated were enrolled on the basis of inclusion and exclusion criteria. All the patients using antianxity drugs, between 18-60 years of age, irrespective of sex, were included in the study. However, patients who were pregnant, lactating, unable to comply due to mental retardation, unconsciousness or drug addiction were excluded from the study.

Study Population

The present study was conducted on 300 patients who visited the Psychiatry indoor and outdoor unit during March 2012 to January 2013.

Inclusion criteria

All subjects of above 18 years of age from both gender. Willingness to give written informed consent and available for follow up, if any.

Parameters for Evaluation

The parameters included gender distribution, age of the patients, type of illness, types of antianxity medication prescribed, prescribed in generic form, average number of drugs per prescription, percentage of the drugs prescribed from NLEM 2011 (National List of Essential Medicines of India), and percentage of injectable drugs prescribed per day[10-12].

Statistical analysis

The data was analyzed using descriptive statistics namely mean and standard deviation for quantitative variables and the association between two different discrete variables was assessed using chi-square test. SPSS V13 statistical software was used to generate graphs and tables wherever necessary. All multiple responses are reported in terms of percentages and total of such response will be greater than sample size.

RESULTS AND DISCUSSION

Drug utilization research is defined as research on marketing, distribution, prescription and use of drugs in a society with a special emphasis on the resulting medical, social and economic consequences and has the principle aim of facilitating the essential and rationale use of the drugs. Every patient always wants a good prescription, well documented, with an optimal dose and drugs with acceptable and as few side effects as possible at an affordable price, with correct information. Drug utilization research provides a baseline reference point about the effect of various interventions on prescribing about the drugs. Drug utilization studies in Benzodiazepines are few in number in Tamil Nadu. Our study was done in an outpatient setting because it is easy to follow up the patients. Psychiatric cases with anxiety that were seriously ill and require inpatient admission were taken into consideration.

In a period from March 2012 to January 2013, a total of 300 patients were included in the study and their prescriptions containing at least one antianxity were analyzed only once time- no follow up visit was done. The demographic profile has been described in Table No.1 and Figure No.1. Among the anxiolytic the commonest drug was Clonazepam 83.12%, followed by Lorazepam 14.53% and Diazepam 1.3% suggesting a trend towards the use of shorter acting Benzodiazepines, as it is seen that continuous and prolonged use of longer acting Benzodiazepines has resulted in dependence and may have withdrawal symptoms when the dosage of these drugs are reduced or treatment is stopped (Table No.2)[13-15].

Table No.1: Prescribing Indicators (N = 300)

S.No	Patient Characteristics	Number of Prescription (N=300)	Percentage (%)
	Age in Years		
1	18-30	165	55.9
2	31-40	50	17.6
3	41-50	40	11.7
4	51-60	35	09.7
5	61-70	10	4.9
	Sex		
1	Male	179	56.7
2	Female	121	43.29

Table No.2: Distribution of Benzodiazepines according to dosage schedule

S.No	Benzodiazepines	No. of use (%)	Dose Mg/d (mean ±sd)	Duration (mean ±sd)	Frequency HS
1	**Clonazepam**	240	0.81±0.04	20.90±0.9	100%
2	**Lorazepam**	35	1.21± 0.41	21.76±0.6	100%
3	**Diazepam**	5	0.5±0.23	20.90±0.8	100%

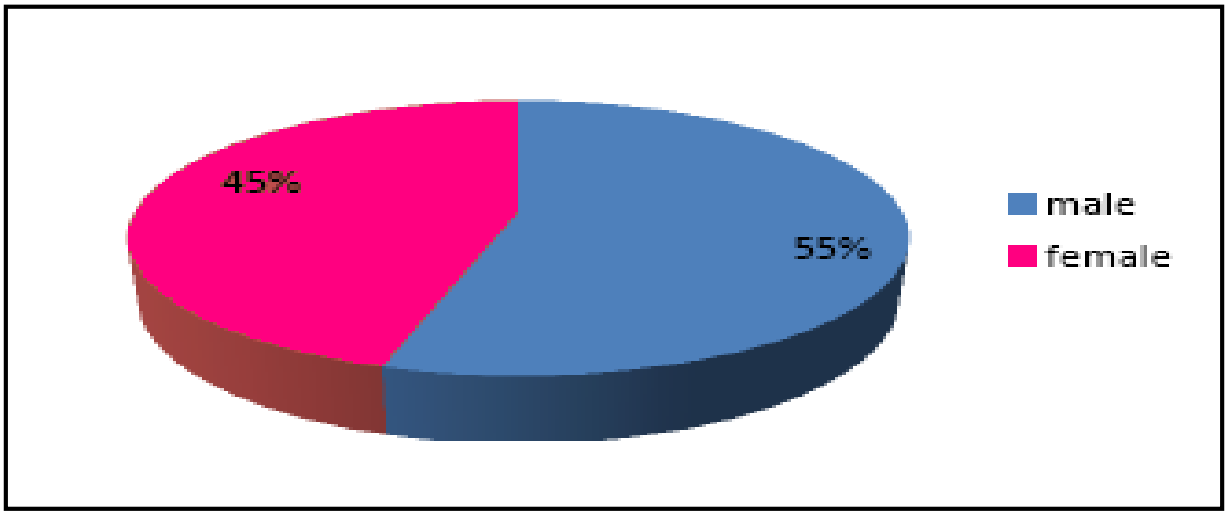

Figure No.1: Shows sex wise distribution

CONCLUSION

Utilization patterns of benzodiazepines were according to treatment guidelines. Benzodiazepines as it are seen that continuous and prolonged use of longer acting Benzodiazepines has resulted in dependence.

ACKNOWLEDGEMENT

Author is thankful to private corporate hospital in Tamil Nadu for providing necessary facilities to carry out this work.

CONFLICT OF INTEREST

We declare that we have no conflict of interest.

REFERENCES

1. Shorter E. Benzodiazepines. *A Historical Dictionary of Psychiatry, Oxford University Press*, 2005, 41-42.
2. Page C, Michael C, Sutter M, Walker M and Hoffman B B. Integrated Pharmacology, 2nd edition, 2002, 671.
3. Olkkola K T and Ahonen J. Midazolam and other benzodiazepines, *Hand Exp Pharmacol*, 182, 2008, 335-360.
4. Dikeos D G, Theleritis C G and Soldatos C R. Benzodiazepines: effects on sleep, Diagnosis and Therapeutics, *Informa Healthcare*, 5, 2008, 220-222.
5. Saïas T and Gallarda T. Paradoxical aggressive reactions to benzodiazepine use: a review, *Encephale*, 34(4), 2008, 330-336.

6. Lader M. Effectiveness of benzodiazepines: do they work or not, *Expert Rev Neurother*, 8(8), 2008, 1189-1191.
7. Ashton H. The diagnosis and management of benzodiazepine dependence, *Current Opinion in Psychiatry*, 18(3), 2005, 249-255.
8. American College of Obstetricians and Gynecologists Committee on Practice Bulletins-Obstetrics. ACOG Practice Bulletin, Use of psychiatric medications during pregnancy and lactation, *Obstet Gynecol*, 111(4), 2008, 1001-1020.
9. Fraser A D. Use and abuse of the benzodiazepines, *Ther Drug Monit*, 20(5), 1998, 481- 489.
10. White J M and Irvine R J. Mechanisms of fatal opioid overdose, *Addiction*, 94(7), 1999, 961-972.
11. Perugi G, Frare F and Toni C. Diagnosis and treatment of agoraphobia with panic disorder, *CNS Drugs*, 21(9), 2007, 741-764.
12. Tesar G E. High-potency benzodiazepines for short-term management of panic disorder: the U.S. experience, *J Clin Psychiatry*, 51(4-10), 1990, 50-53.
13. Faught E. Treatment of refractory primary generalized epilepsy, *Rev Neurol*, 1(1), 2004, 34 - 43.
14. Allgulander C, Bandelow B, Hollander E, Montgomery S A, Nutt D J and Okasha A. WCA recommendations for the long-term treatment of generalized anxiety disorder, *CNS Spectr*, 8(1), 2003, 53-61.
15. Stevens J C and Pollack M H. Benzodiazepines in clinical practice: consideration of their long-term use and alternative agents, *J Clin Psychiatry*, 66(2), 2005, 21-27.

Please cite this article in press as: Jayaprakash K. Study of utilization pattern of benzodiazepine's at private corporate hospital, *International Journal of Research in Pharmaceutical and Nano Sciences*, 3(4), 2014, 357-361.