Research Article **CODEN: AJPCFF** **ISSN: 2321 – 0915**

Asian Journal of Phytomedicine and Clinical Research

Journal home page: www.ajpcrjournal.com

STUDY OF ADR OF BENZODIAZEPINE'S AT A PRIVATE CORPORATE HOSPITAL

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ABSTRACT

Benzodiazepines medications were involved in 85 percent of errors and non Benzodiazepines in 15 percent. 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. The clinical pattern and spectrum of ADRs in the department of medicine were studied in 111 subjects. Prospective observational study was done to assess the clinical pattern and spectrum of ADRs reported in department of pharmacy practice, the assessment of ADRs by various scales, and to compare between patient reporting and Health care professional reporting of ADRs in terms of causality, preventability factors and its impact on emotional, social and occupational life.

KEY WORDS

Benzodiazepine, ADR and Private Corporate Hospital.

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INTRODUCTION

Since the introduction of chlordiazepoxide in 1961, benzodiazepines (BZDs) are the most commonly prescribed medications in anxiety and insomnia (as well as their use in a wide variety of other pathologies), in spite of a limited number of studies showing their efficiency for these two indications. It has been shown that the utilisation of these medications in aged patients represents 27% of the whole prescription treatment whereas the aged patients represent only 14% of the population. Otherwise, BZDs represent 38% of hypnotic prescriptions in the United States. Despite the very large utilisation of BZDs, there is evidence to

suggest that anxious disorders and insomnia are at times under-diagnosed and under-treated in aged patients[1]. This poses the problem of their vast and very weak specificity of utilisation, which proves that these medications are relatively misused. Epidemiological studies show that among 25% of over 65 years old patients are in old folks residences and are often treated with BZDs.

The anxious disorders are typically, chronic disorders with remission periods and may be exacerbated stressful events. Utilisation of BZDs poses a problem with aged patients due to their weak therapeutic index when considering the weak interval of doses between their sedative and anxiolytic properties, showing decreased interval in the aged patient. Ever more so in the young patient, it is necessary to avoid the "sedation trap", i.e., over dosage that renders aged subjects more susceptible to tiredness, prevents them from being active and so decreases their socialisation faculties. Essentially the pharmacokinetics is modified at the time of the administration of medicines to aged patients[2, 3].

Impaired cognitive function appears to be major side effects of BZDs. A follow-up study of 1389 people aged 60 to 70 years showed that long-term use of BZD was a risk factor of increased cognitive decline in the elderly. Previous study showed that older women who used BZDs were at risk for decline in physical performance. Subgroup analyses indicated that risk was greater with use of higher than recommended doses for long duration. These results are confirmed by the results from the Canadian Study of Health and Aging. In this work, BZDs appear to be associated with a number of adverse outcomes including impaired cognitive function[3-9].

In our study we evaluated the adverse drug reaction of benzodiazepines in different diseases at a private hospital.

MATERIALS AND METHODS

Study protocol for Benzodiazepines ADR's

This prospective observational study was done to assess the clinical pattern and spectrum of ADRs reported in department of pharmacy practice, the assessment of ADRs by various scales, and to compare between patient reporting and Health care professional reporting of ADRs in terms of causality, preventability factors and its impact on emotional, social and occupational life.

Study subjects

Outpatients and inpatients of Department of pharmacy practice, Private corporate hospital, Tamil Nadu.

Study period

The study was carried out between March 2012 to January 2013.

Sampling

Consecutive cases attending the medicine out-patient and in-patient admitted to Private corporate hospital and Research Center with suspected ADRs were included in the study.

Inclusion criteria

All subjects of above 18 years of age from both gender with suspected ADRs.

Willingness to give written informed consent and available for follow up, if any.

Exclusion criteria

Patients with drug reaction due to deliberate or unintentional over dosage.

ADR due to medicines of alternate systems like Ayurveda, Homeopathy, Unani.

Drug reaction occurring due to prescribing and dispensing error.

Mentally retarded or unconscious patients.

Reactions due to blood and blood products.

Study procedure[10, 11, 12]

After obtaining approval and clearance from institutional ethics committee, 111 consecutive subjects with suspected ADRs were included in the study after getting their written informed consent. Before initiation of the study, an awareness programme on the importance of ADR reporting by Health care professional was conducted in Pharmacy practice department. Data of spontaneously reported ADRs by healthcare professionals was collected through the hospital ADR reporting form (yellow form) made available at medicine wards and out-patient department. For each patient with suspected ADR, a detailed history including drug history, personal history, family history, present and past

medical history, and history of previous drug allergy were documented; any untoward event was labeled as adverse drug reaction after discussion with the treating physician.

Follow-up

Follow up was done for severe reactions to assess the clinical progress.

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

Results of Study of Benzodiazepines ADR's

Table No.1 shows the frequency of age and gender distribution of the study subjects, their mean age was 40.77±15.64 years (41.96±16.52 for males and 38.76±14.01 for females) the mean age difference between the gender was not statistically significant ($p>0.05$), the eldest being 95 years and the youngest subject being 18 years of age. Majority of the study subjects were in the age group of 41-60 years (36%) which is in accordance with previous study the reason being attributed to increased incidence of diseases like diabetes, hypertension leading to increased usage of medicines, increased visit to the hospital for regular check up associated with increased complaints of drug related adverse events. This group was followed by 29.7% of subjects aged between 26-40 years, 21.6% of subjects between 18-25 years, 11.7% of subjects between 61-80 years and 0.9% of subjects were more than 80 years of age (Figure No.1, 2).

Table No.2 shows ADRs assessed according to Naranjo's probability scale[13, 14]. Majority (54%) of ADR were evaluated as being probable similar to previous studies, 43% as being possible and 3% of ADRs belonged to certain category (Figure No.3).

In the present study, the mean age of the study subject is 40.77 years with male preponderance which is in conformity with previous studies. The predominant pattern of ADR noted were skin rashes with itching which is in accordance with earlier studies. The assessment of causality using WHO-UMC and Naranjo's probability scale revealed that majority of ADRs were probable, which is in accordance with previous studies.

The predominant pattern of ADRs observed was generalized skin rashes and itching. Most of the reactions were probable in causality assessment. Most of the reactions were mild to moderate in severity; the serious reactions were less frequent. No fatality due to ADR was reported. Most of the ADRs were probably preventable. Patient reporting of ADR had very elaborative narration and highlighted more about emotional and occupational impact of ADR on their lives, than Health care professional reported ADR.

Table No.1: Age and gender distribution

S.No	Age groups (in years)	Male		Female		Total	
		n	%	n	%	n	%
1	18-25	12	18	10	24	24	21.6
2	26-40	24	34	11	27	33	29.7
3	41-60	24	34	16	39	40	36.0
4	61-80	9	13	4	10	13	11.7
5	>80	1	1	0	0	1	0.9
Total		70	100	41	100	111	100
Mean ± SD		41.96±16.52		38.76±14.01		40.77±15.64	

Table No.2: Casuality assesement

S.No	Causality	Gender (N=111)					
		Male		Female		Total	
		n	%	n	%	n	%
1	Definite	2	3	1	2	3	3
2	Probable	36	51	26	61	60	54
3	Possible	32	47	14	37	48	43
Total		70	100	41	100	111	100

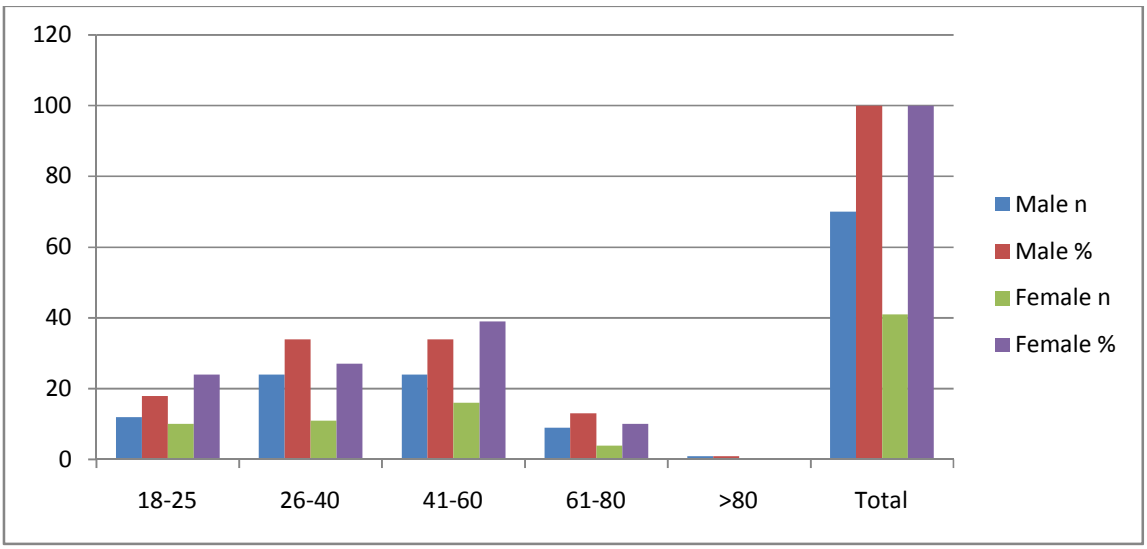

Figure No.1: Shows age distribution

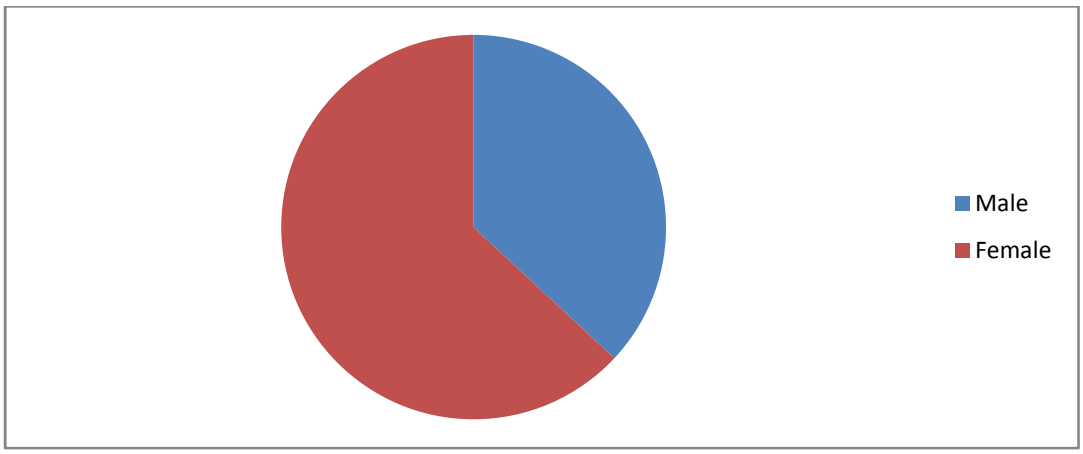

Figure No.2: Shows age distribution

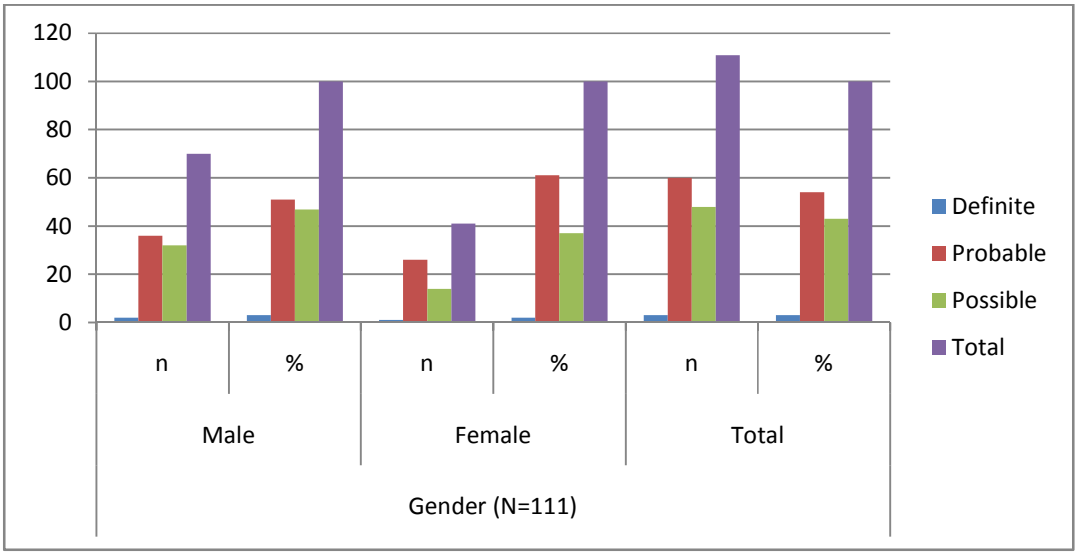

Figure No.3: Shows casuality assesement

CONCLUSION

The clinical spectrum of ADRs reported from the Department of pharmacy practice ranged from the more common mild reactions like skin rashes, itching, nausea and vomiting to moderately severe reactions prolonging the hospital stay of the patients. No fatalities due to ADR were reported.

ACKNOWLEDGEMENT

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

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