Pattern of usage of psychotropic agents in geriatric patients in a teritiary care hospital

Drishya Dev, Rakhi Krishna, Mahima Bharathi, Neethu C M[*], Alex Baby Paul, Priya Vijayakumar

Department of Pharmacy Practice, Amrita School of Pharmacy, Kochi, Amrita Vishwa Vidyapeetham, Kochi-682041, Kerala, India

ABSTRACT

Psychotropic medications are used in the treatment of chronic psychotic disorders like anxiety, depression, insomnia, bipolar disorders, cognitive impairment, seizure, loss of consciousness, altered sensorium, delirium etc. The objective of this study is to describe the pattern of use of psychotropic medications in patients presenting to geriatrics department, to compare the pattern of usage of psychotropic medication at the time of admission versus at the time of discharge and to find out the dose optimization pattern in elderly patients. Observational retrospective study, conducted in the department of geriatrics. The sample size calculated for the study was 35. The study was carried out through AHIS and by reviewing case files. The data were collected on specially designed data collection forms. Consumption of the psychotropic drugs was the highest within 71-80 years of age group, of which 49.15% of patients fall in this age group. All of the patients prescribed with psychotropic medications had insomnia (26.70%), followed by anxiety (20.30%), seizure (20.30%) and depression (16.90%). Among the 2nd generation anti psychotropics, quetiapine was the most frequently prescribed drug (54.24%). Benzodiazepines were the preferred antidepressants (36%) followed by SSRIs. Sixty two percent of the patients continued the same dose prescribed from the outside hospital and a dose increment was done for 37.5% of the patients. The incidence of usage of psychotropic medications were found to be more with females. Atypical antipsychotic drugs were the most commonly used ones. Current evidence shows no superiority for atypical antipsychotics over haloperidol.

*Corresponding Author

Name: Neethu C M
Phone: 9496315794
Email: neethucm92@gmail.com

INTRODUCTION

Psychotropic medications are used in the treatment of chronic psychotic disorders like anxiety, depression, insomnia, bipolar disorders, cognitive impairment, seizure, loss of consciousness, altered sensorium, delirium etc. Of the top ten health conditions contributing to the Disability Adjusted Life Years (DALYs), four are psychiatric disorders (Ford, 2002). The commonly used psychotropic medication include antipsychotics and antidepressants. Antipsychotics include first generation (typical) and second-generation (atypical). Benzodiazepines, Selective Serotonin Reuptake Inhibitors (SSRI), Selective Norepinephrine Reuptake Inhibitor (SNRI), Tricyclic antidepressants (TCA), Mono Amine Oxidase inhibitor (MAOI's) and Noradrenergic and specific serotonergic antidepressants (NaSSA) are considered to be antidepressants. Antipsychotics are one of the most common classes

of drugs prescribed for geriatric patients (Ford, 2002).

In geriatric patients, age-related changes such as altered absorption and distribution, change in hepatic metabolism, reduced renal function comorbid medical conditions and polypharmacy affects the pharmacokinetic and pharmacodynamic properties of antipsychotics. It may lead to increased risk of ADRs and drug interactions (Knol *et al.*, 2008; Jacobson, 2014). Several studies show that the use of antipsychotic drugs in an inappropriate manner, may increase the risk in elderly people, for example, a study conducted by Bulat *et al.* (2008) showed elderly patients taking benzodiazepines are more at risk for falls and skeletal fractures (Bulat *et al.*, 2008). Similarly, the use of benzodiazepines as a sleep aid may worsen sleep patterns in older adults (Voyer and Martin, 2003). The geriatric patients are more prone to extrapyramidal side effects of these drugs, which may lead to medication adherence, sudden falls, fractures etc (Bouman and Pinner, 2002).

Due to this reason, the evaluation of the prescription pattern of antipsychotic drugs is important so that the quality of life of geriatric patients can be improved. The main aim of prescription pattern studies is to increase rational drug use with minimal side effects. Hence our study is focused on the prescription pattern of all psychotropic drugs as it is important to rationalize the prescription pattern of clinicians (Ford, 2002).

METHODOLOGY

An observational retrospective study was conducted to understand the pattern of use of psychotropic agents in geriatrics patients. Retrospective data during January 2015 –December 2015 were collected. Geriatric patients on antipsychotics on 2015 were included in our study. Out of 167 patients, screened from the department of geriatrics, 59 patients were on psychotropic medications. Patients prescribed with antipsychotics for the first time were classified as new cases and patients on follow up were taken as old cases. Patients on follow up were evaluated to check whether the dose is increased, decreased or continued as the same dose. The data collected include gender, age, duration of admission, number of co-morbidities, psychotropic drugs consumed and dose. First-generation antipsychotics include haloperidol (0.25mg), chlorpromazine (10 mg), fluphenazine (1 mg) perphenazine (2 mg) e.t.c. Second-generation antipsychotics include quetiapine (12.5mg-50mg), risperidone (0.5mg),

aripiprazole (10mg), clozapine 25mg) and olanzapine(10mg) . Clonazepam (0.25-0.5 mg), lorazepam (0.5mg-1mg), nitrazepam(5mg), chlordiazepoxide (5mg) comes under Benzodiazepines. SSRIs include escitalopram (5mg-10mg) and fluoxetine(10mg) while venlafaxine (25mg) and desvenlafaxine (50mg) are SNRIs. Amitriptyline (10mg) and imipramine (10mg) are tricyclic anti-depressants. Mirtazapine (15mg) is an atypical antidepressant. They were entered into a data collection form. Statistical analysis was performed. The study was carried out at the Amrita Institute of Medical Sciences and Research Centre (AIMS), Kochi. AIMS is a 1250 bedded tertiary care, teaching and super specialty referral hospital located in Kochi, Kerala. The institution is equipped with 12 super speciality departments and 45 other departments with 210 intensive care beds, a computerized and networked Amrita Hospital Information System (AHIS), a digital radiology department, clinical laboratories and telemedicine service. The retrospective analysis of the study was carried out through AHIS and by reviewing case files. The data were collected on specially designed data collection forms. The study was carried out after obtaining approval from the research and ethics committee.

Sample size

With a 95% confidence interval and 12.4% relative allowable error, the sample size calculated for the study was 35. We could obtain 59 patients with more than 95% confidence interval and less than 10% relative allowable error.

RESULTS AND DISCUSSION

Table 1: Age Distribution of Patients on Psychotropic Drugs

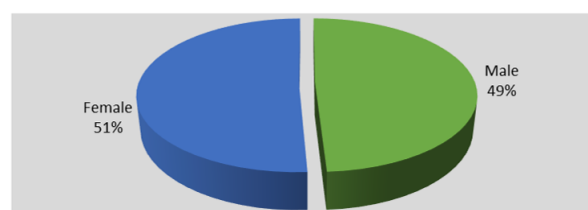| Age (in years)	Percentage (%)
61-71	6.78
71-80	49.15
81-90	35.59
91-100	8.47

Figure 1: Gender distribution of patients taking psychotropic drugs

Table 2: Various Conditions for which Psychotropics Administered

Diseases	Percentage (%)
Insomnia	26.70
Anxiety	20.30
Seizure	20.30
Depression	16.90
Others	15.80

Table 3: Associated Co-morbidities

Co-morbidities	Percentage (%)
Benign prostate hyperplasia	8
Carcinoma	5.6
Chronic liver disease	2.4
Chronic kidney disease	4
Congestive heart failure	2.4
COPD	4.8
Diabetes	22.4
Dyslipidemia	12.8
Hypertension	31.2
Hypothyroidism	5.6
Parkinson's disease	0.8

Table 4: Percentage Consumption of Antipsychotics

Drugs	Percentage (%)
Haloperidol	11.80
Quetiapine	54.24
Risperidone	3.38
Aripiprazole	1.60
Clozapine	1.60
Olanzapine	1.60
Others	25.78

Table 5: Classification of Anti-depressants

Anti-depressants	Percentage (%)
Benzodiazepines	36
SSRI	28
SNRI	12
TCA	8
Miscellaneous	16

Figure 2: Associated Comorbidities
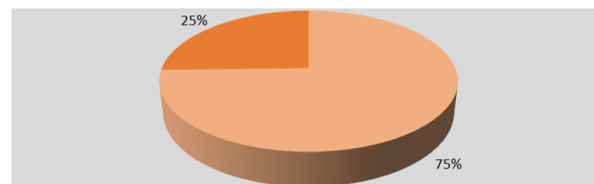
Figure 3: Classification of patients on psychotropics

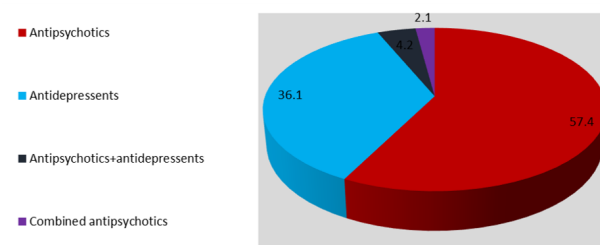**Figure 4: Pattern of usage of psychotropics for new case**
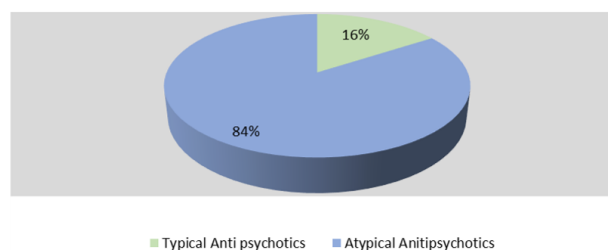
Figure 5: Distribution of typical and atypical antipsychotics
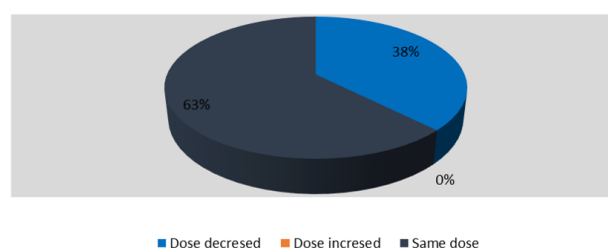

Figure 6: Dose optimization

The mean age of the study population was 80.10±7).34. Total number of female patients were 30(50.80%) and males were 29(49.15%) (Figure 1). Consumption of psychotropic was highest within 71- 80 years of age group. 49.15% of patients fall in this age group. It is illustrated in (Table 1). Insomnia was found to be the dominating condition for which antipsychotics were used (Table 2). Details of co-morbidities are given on (Table 3), where hypertension was found to be the major contributor. On average, patients were admitted for 6 days. All of the patients prescribed with psychotropic medications had insomnia, followed by anxiety (20.30%), seizure (20.30%) and depression (16.90%) (Figure 2). 27% percent of our patients were on psychotropic medications from the outside hospital while for more than 75% of patients were started on psychotropic from our hospital (Figure 3). Pattern of prescription of antipsychotics for both new and old cases (Figure 4). Antipsychotic agents were commonly prescribed psychotropic medication in both cases. Consumption of antipsychotics was found to be high in both cases. Combination therapy of antipsychotics was done while combined antidepressant therapy was not given in both the hospitals. Combination of antipsychotics and antidepressants were given in our hospital. Pattern of prescription of typical and atypical antipsychotics (Figure 5). About 84.09 % of patients were prescribed on 2nd generation antipsychotics. Among the 2nd generation antipsychotics, quetiapine was prescribed for 72.72% of patients (Table 4). Benzodiazepines (36%) were the most commonly prescribed antidepressants, followed by SSRI (28%) (Table 5). Dose optimization for whole psychotropic therapy (Figure 6). Sixty two percent of patients were continued with the same dose prescribed from outside hospital. Dose increment was done for 37.5 % of patients.

Our demographics suggested that females and geriatric groups had a maximum consumption of psychotropic drugs. Women's higher depression rate may be due to the fact that they are more prone to hormonal and psychosocial imbalances. It was similar to the study done by Chattar et al. (2016). 61.97% of the patients were females and males were 38.02%. We could observe that all of our patients were on traditional psychotropic agents, similar to the study conducted by Trivedi et al. (2006). No one was prescribed on newer classes of psychotropic. An Indian study reported that the consumption of psychotropic are more with males with age group 60-65 years while the number of female patients with 71-80 was more in our study, which was controversial (Dinesh and Divya, 2012). Majority of patients were reported to have hypertension in both studies. Most of our patients had at least one co-morbidity. Insomnia was common in all of them. A study conducted by Maurice M Ohayon et al. reported that the majority of the study population had insomnia (Ohayon and Schatzberg, 2003). From our experience monotherapy, the prescription was seen more, suggestive of less dependence on combination therapy. A similar result was obtained by Trivedi et al. in his study (Trivedi et al., 2006).

Study by Dileep C et al. reported that anxiolytics were the commonly used psychotropic followed by antidepressants and antipsychotics (Dinesh and Divya, 2012). This statement is contrary to our findings. Usage of antipsychotics was more than anxiolytics in our patients. A study on the bipolar disease by Ross J Baldessarini et al. stated that antidepressants were the commonly used drug therapy which was contradictory to our study (Baldessarini et al., 2006). A similar study done by Jane R. Mort on ambulatory elderly patients concluded that most of the psychotropic prescriptions were inappropriate, but we could not expand our study to check for the appropriateness of prescription (Aparasu and Mort, 2000). A Saudi Arabian study expanded to outpatients, also reported that antipsychotics were the commonly prescribed medication (Rajeh et al., 2001; Suresh et al., 2015). But the usage of combination therapy in both the studies was contradictory. Second generation formulation were the commonly used antipsychotics in both the studies. It includes Quetiapine, Risperidone, Aripiprazole and Clozapine. Our study, which was similar to an Indian study which assessed the first prescription handed over to ill patients, reported that citalopram was the commonly prescribed anti-depressant (Dinesh and Divya, 2012; Giri et al., 2016). While in the case of antipsychotics Olanzapine was the commonly used drug therapy in their study; however, quetiapine was the maximum in ours.

CONCLUSIONS

The incidence of usage of psychotropic medications were found to be more with females. Atypical antipsychotic drugs were the most commonly used ones. Quetiapine was the most frequently prescribed antipsychotic agent. Benzodiazepines were the preferred antidepressants, followed by SSRIs. Most patients relayed on monotherapy. Current evidence shows no superiority for atypical antipsychotics over haloperidol.

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Conflict of Interest

The authors declare that they have no conflict of interest for this study.

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