Clin Schizophr Relat Psychoses
Volume 15: S8, 2021
Doi: 10.3371/CSRP.AHSS.073021

Clinical Schizophrenia & Related Psychoses

Research Article

Hybrid Open Access

Assessment of Prescription Pattern of Antipsychotic Medications in a Psychiatry Inpatient Setting of a Secondary Care Hospital of United Arab Emirates

Haneen A.R Aburamadan[1], Sathvik Belagodu Sridhar[1*], Talaat Matar Tadross[2] and Atiqulla Shariff[1]

[1]Department of Clinical Pharmacy and Pharmacology, RAK Medical and Health Sciences University, Ras Al-Khaimah, United Arab Emirates

[2]Departmnent of Psychiatry, Ibrahim Bin Hamad Obaidallah Hospital, Ras Al-Khaimah, United Arab Emirates

Abstract

Background: Analysis and evaluation of the prescribing pattern can improve clinical outcomes. There is a lack of available data regarding antipsychotic prescribing patterns in psychiatric in-patients in the United Arab Emirates.

Aim: This study aimed to assess the prescription pattern of antipsychotic medications in a psychiatry in-patient setting of a secondary care hospital in the UAE.

Methods: This prospective, observational study included psychiatric in-patients receiving antipsychotic therapy. We assessed the type, dose, route of administration, monotherapy, and combination therapy of antipsychotics used.

Results: One hundred and seventy patients were enrolled in the study. Bipolar I Disorder was diagnosed in the majority of the cases (21.8%), followed by schizophrenia (17.1%) and substance use disorder (10.6%). The most frequently prescribed antipsychotic drug was olanzapine (38.2%), followed by quetiapine (15.2%) and risperidone (8.8%). Olanzapine plus quetiapine (5.2%) and olanzapine plus risperidone (4.1) were the most prescribed combination therapy. Seven of the eleven antipsychotics used in our study had a PDD to DDD range of 0.7-1.3, which was considered adequate.

Conclusion: The study findings demonstrated a distinct prescription pattern for in-patients setting in RAK, UAE. The psychiatrist preferred to prescribe second-generation antipsychotic drugs over first-generation antipsychotic drugs.

Keywords: Antipsychotic medications • Bipolar I disorder • Prescription pattern • Psychiatry in-patient department

Introduction

Antipsychotics are a class of agents that can decrease psychotic symptoms in various psychiatric conditions. For severe psychiatric disorders such as schizophrenia and other psychoses, they are first-line pharmacological treatments. However, they are not commonly prescribed for other mental conditions, including depression; sleep disturbances, or obsessive-compulsive disorder [1]. The current availability of a wide range of antipsychotic agents makes a rational selection of antipsychotics a challenge. However, efficient the older typical antipsychotics are associated with unpleasant extrapyramidal side effects. Therefore, the introduction of newer antipsychotic medications has prompted significant changes in prescribing patterns in various mental illnesses [2]. The European countries report the vast difference in the prescribing rates for atypical antipsychotic drugs and typical antipsychotic drugs in the treatment of schizophrenia. The ratio is low in countries like France (20.2%), Germany (20.7%), and Italy (22.3%), while it is higher in Denmark (33.3%), the Netherlands (35.6%), and the UK (27.5%) [3].

Atypical antipsychotics (67.7%) were more often prescribed than typical antipsychotics in the Middle East, and the most frequently prescribed antipsychotics being risperidone and haloperidol [4]. Schizophrenic in-patients frequently received second-generation antipsychotics in combination therapy rather than the recommended monotherapy in doses that differed from the recommended guidelines. Risperidone was the most commonly prescribed drug [5]. Prescription patterns of antipsychotic drugs vary significantly across countries and also continents. This is attributed to variations in healthcare policy, medication supply and cost, psychiatric expertise, and treatment modalities [6].

Apart from these studies, there is a lack of available data regarding antipsychotic prescribing patterns in psychiatric in-patients in the United Arab Emirates. Therefore, this study attempts to comprehensively assess the prescribing pattern of antipsychotics in a secondary care hospital in the UAE. The type of antipsychotic drug, dose, routes of administration, duration of therapy, monotherapy and combination therapy, and maintenance therapy during hospitalization and upon discharge were assessed.

Materials and Methods

Study design and setting

This prospective observational study was conducted for seven months at the department of psychiatry in a secondary care government hospital of Ras Al Khaimah, United Arab Emirates.

Participants

Psychiatric in-patients of any age group and gender diagnosed with any psychiatric disorder and prescribed at least one antipsychotic medication (inclusion criteria) were enrolled in this study. Psychiatric in-patients who are not managed/prescribed with any antipsychotic medications readmitted patients for recurrences or relapses, and patients managed with antipsychotics but admitted in the other ward/specialties of the hospital were excluded from the study. This study was conducted after obtaining approval

***Corresponding Author:** *Sathvik Belagodu Sridhar, Department of Clinical Pharmacy and Pharmacology, RAKCOPS, RAKMHSU, Ras Al-Khaimah, UAE; Tel: +971 971072043000; Email: sathvik@rakmhsu.ac.ae*

Received date: July 09, 2021; **Accepted date:** July 23, 2021; **Published date:** July 30, 2021

from both the institutional and local research and ethics committee of Ras Al Khaimah (RAK MHSU-REC: 8-2015-PG-P). All procedures performed in studies complied with the institutional and local research and ethics committee's standards.

Data collection

The principal investigator identified the cases by attending the ward rounds at the study site along with the treating psychiatrist. Thus, identified patients were enrolled in the study, and all the necessary and relevant data was collected through patients' electronic medical records. Collected data were assessed according to the specified study parameters, including the type of drug, dose, and administration route, duration of therapy, monotherapy and combination therapy, and maintenance therapy during hospitalization and upon discharge.

Data analysis

The data was then compiled in a Microsoft® Excel sheet and evaluated with SPSS® version 24.0. The continuous data is represented as Mean Standard Deviation (MSD), while the categorical data are expressed as percentages. The prescription pattern of antipsychotics was expressed as Defined Daily Doses (DDD), Prescribed Daily Doses (PDD), and PDD ratio to DDD. DDD was obtained from the WHO collaborating center for drug statistics methodology. Simultaneously, PDD was mathematically measured by averaging the daily doses of the antipsychotics prescribed among the study population. Finally, the PDD to DDD ratio was determined by dividing the calculated PDD by the medication's DDD.

Results

The research was effective in enrolling a total of 170 patients who met the requirements for inclusion. Males made up the bulk of the participants in the sample (57.6%). The study population's age varied between 19 years to 73 years (Mean age: 34.88 ± 12.90 years). Other demographic parameters of the study population are presented in Table 1. The Diagnostic and Statistical Manual of Mental Disorders, 5th Edition (DSM-5) criteria were used to determine the psychiatric condition of the patients. A significant portion of the study patients were diagnosed with Bipolar I disorder (21.8%) (Table 2).

Table 1. Patient demographics.

Male	98 (57.6%)
Female	+72 (42.4%)
Nationality	
Local	78 (45.9%)
Expatriate	92 (54.1%)
Past medical history (General medical conditions)	
Present	53 (31.2%)
Absent	117 (68.8%)
Past medication history (Previous treatment with antipsychotics)	
Yes	84 (49.4%)
No	63 (37.1%)
Unknown	23 (13.5%)
Previous treatment with other psychotropics	
Yes	86 (50.6%)
No	60 (35.3%)
Unknown	24 (14.1%)
Family history of psychiatric illness	
Yes	21 (12.4%)
No	64 (37.6%)
Unknown	85 (50%)
Current employment status	
Employed	71 (41.8%)
Not employed	99 (58.2%)
Current marital status	
Single	74 (43.5%)
Married	85 (50%)
Divorced	11(6.5%)
Alcohol use	
Yes	29 (17.1%)
No	141 (82.9%)
Illicit Drug Use	
Yes	24 (14.1%)
No	146 (85.9%)
Tobacco use	
Yes	62 (36.5%)
No	108 (63.5%)
Number of suicidal attempts (current or previous)	
None	143 (84.1%)
One or more	27 (15.9%)

Table 2. Medical diagnosis of the study patients.

Diagnosis	ICD-10 Code	No. of patients (%)
Bipolar I Disorder	F06.31	37 (21.8)
Schizophrenia	F20.9	29 (17.1)
Substance Use Disorder	F19	18 (10.6)
Schizoaffective Disorder	F25.9	17 (10)
Adjustment Disorder	F43.2	11 (6.5)
Alcohol Use Disorder	F10	10 (5.9)
Major Depressive Disorder	F32.9	9 (5.3)
Unspecified Schizophrenia Spectrum and Other Psychotic Disorder	F23.9	7 (4.1)
Major Depressive Disorder with psychotic features	F33.3	7 (4.1)
Borderline Personality Disorder	F60.31	4 (2.4)
Brief Psychotic Disorder	F23.0	3 (1.8)
Intellectual Disability	F78	3 (1.8)
Schizophreniform Disorder	F20.8	2 (1.2)
Other Specified Schizophrenia Spectrum and Other Psychotic Disorder	F23.8	2 (1.2)
Delusional Disorder	F22.0	2 (1.2)
Conduct Disorder	F91.9	2 (1.2)
Psychotic Disorder due to another Medical Condition	F28	1 (0.6)

Substance/Medication-Induced Psychotic Disorder	F1x.5	1 (0.6)
Antisocial Personality Disorder	F60.2	1 (0.6)
Personality Change Due to another Medical Condition	F62.8	1 (0.6)
Conversion Disorder	F44.0	1 (0.6)
Dissociative Amnesia	F44.0	1 (0.6)
Obsessive-Compulsive Disorder	F42.9	1 (0.6)
Abbreviations: ICD-International Classification of Diseases		

Prescription pattern of antipsychotics

A total of eleven antipsychotics (either as mono or polytherapy or as depot preparations) were prescribed for 170 patients (1.32 ± 0.43 antipsychotics prescribed/patient). The majority of the study patients (68.8%) received Second-Generation Antipsychotics (SGAs) as monotherapy. Risperidone depot preparation was the most common (14 out of 15 patients) depot preparation used among the study population (Table 3). The Prescribed Daily Doses (PDD), Defined Daily Doses (DDD), and PDD ratio to DDD for all the antipsychotics prescribed are presented in Table 4. We observed that seven out of eleven antipsychotics used in our study were within the adequate PDD to DDD ratio between 0.7-1.3. All antipsychotics used as maintenance therapy during hospitalization were administered orally except for depot preparations, administered through deep intramuscular Injection. We further attempted to correlate the antipsychotics prescribed during hospitalization to the different psychiatric diagnoses in this study. The correlations are compiled in Table 5.

Table 3. Antipsychotics used as mono/polytherapy during hospitalization.

Type of antipsychotic/s	No. of patients (%)
One FGA	7 (4.1)
Haloperidol	4 (2.35)
Chlorpromazine	2 (1.17)
Prochlorperazine	1 (0.58)
Two FGAs	1 (0.58)
Haloperidol+Chlorpromazine	1 (0.58)
One SGA	117 (68.8)
Olanzapine	65 (38.23)
Quetiapine	26 (15.29)
Risperidone	15 (8.82)
Aripiprazole	9 (5.29)
Ziprasidone	1 (0.58)
Sertindole	1 (0.58)
Two SGAs	24 (14.1)
Olanzapine+Quetiapine	9 (5.29)
Olanzapine+Risperidone	7 (4.1)
Olanzapine+Aripiprazole	2 (1.1)
Risperidone+Quetiapine	2 (1.1)
Quetiapine+Aripiprazole	2 (1.1)
Quetiapine _Sertindole	1 (0.58)
Quetiapine+Clozapine	1 (0.58)
Three SGAs	1 (0.58)
Olanzapine+Quetiapine+Aripiprazole	1 (0.58)
One FGA+one SGA	5 (2.94)
Chlorpromazine+Quetiapine	1 (0.58)
Chlorpromazine+Risperidone	1 (0.58)
Haloperidol+Quetiapine	3 (1.76)
Two FGAs+1 Depot preparation	1 (0.58)
Chlorpromazine+Trifluoperazine+Haloperidol depot	1 (0.58)
One SGA+1 Depot preparation	7 (4.1)
Olanzapine+Risperidone depot	4 (2.3)
Risperidone+Risperidone depot	2 (1.1)
Quetiapine+Risperidone depot	1 (0.58)
Two SGAs+1 Depot preparation	6 (3.52)
Risperidone+Quetiapine+Risperidone depot	3 (1.76)
Risperidone+Olanzapine+Risperidone depot	2 (1.1)
Quetiapine+Aripiprazole+Risperidone depot	1 (0.58)
One FGA+One SGA+1 Depot preparation	1 (0.58)
Haloperidol+Quetiapine+Risperidone depot	1 (0.58)
Total	170 (100)
Abbreviations: FGA-First generation antipsychotic, SGA-Second generation antipsychotic	

Table 4. PDD, DDD values, and PDD/DDD ratio for the antipsychotics used as in the study population.

Type of antipsychotic/s	No. of patients (%)		ATC Code	PDD (mg)	DDD (mg)	PDD/DDD
First generation antipsychotics						
Haloperidol	9 (5.2)		N05AD01	7.7	8	0.96
Chlorpromazine	6 (3.5)		N05AA01	154.1	300	0.51
Prochlorperazine	1 (0.58)		N05AB04	20	100	0.2
Trifluoperazine	1 (0.58)		N05AB06	10	20	0.5
Second generation antipsychotics						
Olanzapine	90 (52.9)		N05AH03	12.2	10	1.22
Quetiapine	52 (30.5)		N05AH04	294.2	400	0.73
Risperidone	32 (18.8)		N05AX08	4.3	5	0.86

Aripiprazole	15 (8.8)		N05AX12	16	15	1.06
Ziprasidone	1 (0.58)		N05AE04	160	80	2
Sertindole	2 (1.17)		N05AE03	18	16	1.12
Clozapine	1 (0.58)		N05AH02	400	300	1.33
Depot antipsychotic preparations						
Risperidone depot	14 (8.2)		N05AX08	6.3	2.7	2.33
Haloperidol depot	1 (0.58)		N05AD01	3.3	3.3	1
Abbreviations: ATC: Anatomical Therapeutic Chemical; DDD: Defined Daily Doses; PDD: Prescribed Daily Doses						

Table 5. Correlation of commonly prescribed antipsychotics and psychiatric diagnosis.

Disease / drug	O	R	Q	A	Z	H	S	Cl	P	Ch	T
Bipolar i disorder	27	1	6	4	0	1	1	0	0	0	0
Schizophrenia	14	10	9	5	1	1	1	1	0	1	1
Substance use disorder	5	0	15	0	0	0	0	0	0	1	0
Schizoaffective disorder	9	8	2	3	0	0	0	0	0	0	0
Adjustment disorder	9	1	2	1	0	0	0	0	0	0	0
Alcohol use disorder	3	1	6	0	0	4	0	0	0	1	0
Major depressive disorder	2	3	3	1	0	0	0	0	0	0	0
Unspecified schizophrenia spectrum and other psychotic disorder	5	1	0	0	0	2	0	0	0	1	0
Major depressive disorder with psychotic features	3	1	2	1	0	0	0	0	0	0	0
Borderline personality disorder	2	0	1	0	0	0	0	0	1	0	0
Brief psychotic disorder	2	1	1	0	0	0	0	0	0	0	0
Intellectual disability	1	1	0	0	0	1	0	0	0	0	0
Schizophreniform disorder	1	2	0	0	0	0	0	0	0	0	0
Other specified schizophrenia spectrum and other psychotic disorder	1	1	0	0	0	0	0	0	0	0	0
Delusional disorder	2	0	1	0	0	0	0	0	0	0	0
Conduct disorder	0	0	2	0	0	0	0	0	0	1	0
Psychotic disorder due to another medical condition	0	1	0	0	0	0	0	0	0	0	0
Substance/medication-induced psychotic disorder	1	0	0	0	0	0	0	0	0	0	0
Antisocial personality disorder	0	0	0	0	0	0	0	0	0	1	0
Personality change due to another medical condition	0	0	1	0	0	0	0	0	0	0	0
Conversion disorder	1	0	1	0	0	0	0	0	0	0	0
Dissociative amnesia	1	0	0	0	0	0	0	0	0	0	0
Obsessive-compulsive disorder	1	0	0	0	0	0	0	0	0	0	0

Note: o-olanzapine, r-risperidone, q-quetiapine, a-aripiprazole, z-ziprasidone, h-haloperidol,

S-sertindole, cl-clozapine, p-prochlorperazine, ch-chlorpromazine, t-trifluoperazine

Management of acute psychotic agitation using parenteral antipsychotics, sedatives, and hypnotics

In patients with acute psychotic agitation, first-generation parenteral antipsychotics were administered intramuscularly when required, and 34.1% of these patients were managed with chlorpromazine injection. Among the parenteral sedatives and hypnotics, diazepam was prescribed for 23.5% of patients with acute psychotic agitation (Table 6). Parenteral diazepam and midazolam were administered intravenously, while parenteral promethazine was administered intramuscularly.

Table 6. Medications used for management of acute psychotic agitation.

Type of medication	Dose (in mg)	No. of patients (%)
Parenteral FGA		
Chlorpromazine		58 (34.1)
	25	4 (2.4)
	50	54 (31.8)
Haloperidol		30 (17.6)
	2.5	1 (0.6)
	5	23 (13.5)
	10	6 (3.5)
Zuclopenthixol	50	3 (1.8)
Parenteral sedatives and hypnotics		
Diazepam		40 (23.5)
	2.5	1 (0.6)
	3	2 (1.2)
	5	18 (10.6)
	10	19 (11.2)
Promethazine		2 (1.2)
	25	1 (0.6)
	50	1 (0.6)
Midazolam	3	1 (0.6)

Abbreviations: FGA-First generation antipsychotic

Psychotropic co-medications

Mood stabilizers (75, 44.1%), sedatives and anxiolytics (60, 35.3%), and antidepressants (52, 30.6%) were the most frequently administered psychotropic co-medications. Anticholinergics were prescribed in 26 (15.3%) of the patients. In 20 (11.8%) of the patients, other drugs (antiepileptics or anti-dementia) were prescribed.

Discussion

In our study, most of the study populations were diagnosed to have Bipolar I disorder, followed by schizophrenia. The prevalence of these diseases was similar to the general prevalence [7]. A clear family history of psychiatric disorders was observed only in 12.4% of the study patients. Those with a family history of all mental illnesses (except substance abuse) and a suicidal history are at a significantly greater risk of developing schizophrenia [8]. The mean length of hospitalization in our study was 17.11 ± 17.27 days. In our study, Bipolar I disorder was the most common psychiatric diagnosis for which antipsychotics were prescribed, followed by schizophrenia and substance abuse disorder. Two previous reports suggest that antipsychotics were the most commonly prescribed in schizophrenia, followed by psychotic disorder and substance use disorder [6,9]. A UK-based study also reported that SGA were commonly prescribed for Bipolar disorder without psychotic features, while FGA were prescribed for schizophrenia and Bipolar disorder with psychotic features [1].

The mean total number of drugs prescribed and antipsychotics prescribed in our study patients was 2.69 ± 1.09 and 1.23 ± 0.43 per patient, respectively. This is analogous to the study reported by Jyothi, where the average number of antipsychotic medications prescribed was 1.17 [10]. According to World Health Organization recommendations, the number of antipsychotic drugs/prescriptions should be within the 1.6–1.8/encounter [6], a standard that was confirmed in our study. Antipsychotic polytherapy is defined as when two or more antipsychotic drugs are prescribed concurrently [11]. In our study, 72.9% of patients received antipsychotics as monotherapy, while others were managed with antipsychotic polytherapy during hospitalization. This is in line with a Spanish study that reported antipsychotic monotherapy (69.2%) and polytherapy (21.8%) [12]. In contrast, a Middle-Eastern-based study involving the same psychiatric in-patient setting of our study revealed SGAs used commonly in combination therapy rather than in monotherapy [5]. This contradictory finding might be attributed to its multi-centric design and a small number of patients included from our psychiatric in-patient unit.

In our study, the most commonly prescribed combination therapy was olanzapine plus quetiapine (5.2%) and olanzapine plus risperidone (4.1%). The most widely used antipsychotic drug combination has been identified as olanzapine and risperidone in a study [12]. In the same study, polytherapy prevalence of three and four combinational antipsychotics were 1.5% and 0.3%, respectively [12]. However, in our study, polytherapy with three antipsychotics was less significant (0.6%).

Our study did not have polytherapy with four antipsychotics. A study with similar findings reported that most patients (53.3%) were managed with antipsychotic monotherapy compared to polytherapy 46.6% [6]. Contradictory findings where the antipsychotic combination was used more frequently than antipsychotic monotherapy are reported [2,13,14]. The discrepancies in the antipsychotic therapy might be related to psychiatrists' preferences based on their clinical experience and awareness of different practice guidelines for prescribing antipsychotics [13].

A majority of our study patients (68.8%) received SGA, while a small percentage of study patients received conventional/first-generation antipsychotics. A similar finding was reported in an Indian study, wherein atypical antipsychotics (59%) were preferred over typical antipsychotics (28.6%) [7]. In contrast, some studies have reported FGA as the most commonly prescribed class of medications [2,13,15]. This discrepancy in prescribing practice may be due to the availability and cost of antipsychotic medications. Olanzapine was the most common antipsychotic prescribed in 52.9% of patients, followed by quetiapine (30.5%) and risperidone (18.8%). Concordance findings have been reported in a French study where olanzapine (70%) was the commonest prescribed antipsychotic, followed by risperidone (44.4%) [16]. As per a systematic review, olanzapine is more effective than other atypical antipsychotic drugs except for clozapine [17].

Among eleven antipsychotics used in our study population, three antipsychotics, namely prochlorperazine (PDD to DDD ratio 0.2), chlorpromazine, and trifluoperazine (PDD to DDD ratio 0.5 each), were used in inadequate doses, suggesting underutilization of these antipsychotics. Thakkar KB also observed underutilization of two antipsychotics, namely, chlorpromazine (PDD to DDD ratio 0.26) and lithium (PDD to DDD ratio 0.5) [15]. In a study conducted by Ranjan, similar findings were reported where levosulpride was used in sub-therapeutic doses as indicated by its PDD to DDD ratio of 0.18 [18]. In our study, ziprasidone and risperidone depot preparation were overly utilized (PDD to DDD ratio of 2 and 2.33, respectively). Similar observations were noted in a study where olanzapine and aripiprazole were overly utilized, as indicated by the PDD to DDD ratio of 2 [19]. In another study, Adesola AO reported a prevalence of high-dose antipsychotic prescribing in about 38% of their study population. They defined high-dose as a PDD to DDD ratio of more than 1.5 [20]. Balaji observed the PDD to DDD ratio of 5 for trifluoperazine, indicating overutilization of this antipsychotic [21].

In our study, parenteral anxiolytics were used to control psychotic agitation and conventional antipsychotics for sedation and agitation control. Parenteral Chlorpromazine (34.1%) and diazepam (23.5%) were the most often prescribed drugs in our study, which contradicts a report

wherein parenteral haloperidol and promethazine were the most commonly used to control psychotic agitation [5]. Antipsychotics in depot injections were administered to only 8.8% of patients, where risperidone was the most commonly prescribed. Previous studies report a higher rate of prescribing depot antipsychotics within the group of typical antipsychotics [3,13]. Comparable findings can be reflected by a higher adherence to oral antipsychotics in our study patients.

Moreover, in a Finland study, the usage of depot antipsychotics was linked to a lower re-hospitalization rate than using oral formulations of the same drugs [22]. The NHS guidelines state that the use of depot antipsychotic preparation is determined by the level of adherence to oral medications. Furthermore, it recommends that depot antipsychotics be prescribed only to patients whose non-compliance is a primary medical concern in their treatment course [23].

Conformance with the international guidelines

Overall, the observed clinical practice regarding antipsychotic prescribing was in accordance with the treatment guidelines recommended by American Psychiatric Association (APA) and National Institute for Health and Care Excellence (NICE) [22,23].

Prescribing antipsychotics as monotherapy

The APA guidelines recommend using two or more antipsychotic medications concurrently should not be routinely prescribed [24]. In our study, most study patients (68.8%) received antipsychotics as monotherapy, while others were managed with an antipsychotic combination during hospitalization.

Prescription of depot antipsychotic preparation

The NICE recommends that antipsychotic depot injections be prescribed in patients with inadequate oral treatment compliance in the maintenance phase [22]. In our study, fifteen patients (8.8%) received antipsychotic depot injections where non-compliance was a primary medical concern.

Conclusion

Our study findings suggest that majority of psychiatric in-patients received antipsychotics as monotherapy. The most prominent condition was found to be bipolar I disorder, accompanied by schizophrenia. The most often prescribed antipsychotic medication was olanzapine. This research presents observational evidence of prescription patterns for antipsychotic drugs in the psychiatry in-patient setting. The clinicians had a preference for prescribing second-generation antipsychotics over first-generation antipsychotic drugs for various psychiatric illnesses. The study setting's current clinical practice was concordant with the international guidelines' recommendations where rational antipsychotic prescribing was effectively implemented.

Limitation of the Study

For some study patients, information on social and medical histories were not available in the electronic medical record.

Acknowledgment

Our sincere thanks to all the health care staff in the psychiatric study community and the hospital director for their kind support. The authors express their appreciation to all the RAK Medical and Health Sciences University administrators, Ras Al Khaimah, for their gracious support for the study period.

Conflict of Interest

The authors declare no conflict of interest.

References

1. Marston, Louise, Irwin Nazareth, Irene Petersen and Kate Walters, et al. “Prescribing of Antipsychotics in UK Primary Care: A Cohort Study.” *BMJ Open* 4 (2014): e006135.
2. Sushma, H. K., C. H. Jyothi, H. S. Somashekar and E Avanthi, et al. “Prescribing Pattern of Antipsychotic Medications in Patients with Schizophrenia in a Tertiary Care Hospital.” *Int J Basic Clin* 4 (2015):134-138.
3. Weinbrenner, S., H-J. Assion, T. Stargardt and R. Busse, et al. "Drug Prescription Patterns in Schizophrenia Outpatients: Analysis of Data from a German Health Insurance Fund." *Pharmacopsychiatry* 42 (2009): 66-71.
4. Al Khaja, Khalid AJ, Mohammed K. Al-Haddad, Reginald P. Sequeira, and Adel R. Al-Offi. "Antipsychotic and Anticholinergic Drug Prescribing Pattern in Psychiatry: Extent of Evidence-Based Practice in Bahrain." *Pharmacology & Pharmacy* 3 (2012): 409.
5. Alkhadhari, Sulaiman, Nasser Al Zain, Tarek Darwish and Suhail Khan, et al. “Use of Second-Generation Antipsychotics in the Acute Inpatient Management of Schizophrenia in the Middle East.” *Neuropsychiatr Dis Treat* 2015 (2015): 915-924.
6. Paul, Pranab Kumar, Mahanjit Konwar, and Swarnamoni Das. "To Study the Prescribing Pattern of Antipsychotic Drugs in a Tertiary Care Hospital of Assam." *Int J Pharm Pharm Sci* 6 (2014): 4-6.
7. Kessler, Ronald C, G Paul Amminger, Sergio Aguilar-Gaxiola and Jordi Alonso, et al. “Age of Onset of Mental Disorders: A review of Recent Literature.” *Curr Opin Psychiatry* 20 (2007): 359-64.
8. Byrne, Majella, Esben Agerbo, and Preben Bo Mortensen. "Family History of Psychiatric Disorders and Age at First Contact in Schizophrenia: An Epidemiological Study." *Br J Psychiatry Suppl* 181 (2002): s19-s25.
9. Abubakar, Kabir, Abubakar Amali Muhammad, Abdulgafar O. Jimoh, and Sani Bako Abubakar. "Prescription Pattern of Antipsychotic Drugs-A Case study of a Neuro-Psychiatric Hospital in North-Western Nigeria." *Eur J Sci Res* 95 (2012): 332-7.
10. Jyothi, Neeli Uma, Pamidi Pradeep, Madapati Vinod Kumar and Kanneganti Sandeep, et al. "Schizophrenia: Psycho-Social Demographic Profile and Drug Utilization Study of Antipsychotics at a Government Medical Teaching Hospital." *World J Pharm Pharm Sci* 4 (2015): 1036-1045.
11. Chang, Jhin Goo, Daeyoung Roh, and Chan Hyung Kim. "Recent Trends of Antipsychotics Polypharmacy in Schizophrenia." *Korean J Psychopharmacol* 24 (2013): 137-146.
12. Bioque, Miquel, Adrián Llerena, Bibiana Cabrera and Gisela Mezquida, et al. "A Pharmacovigilance Study in First Episode of Psychosis: Psychopharmacological Interventions and Safety Profiles in the PEPs Project." *Int J Neuropsychopharmacol* 19 (2016): pyv121.
13. Sweileh, Waleed M, Jihad Bani Odeh, Sa'ed H Zyoud and Ansam F Sawalha, et al. “Conformance to Schizophrenia Treatment Guidelines in North West-Bank, Palestine: Focus on Antipsychotic Dosing and Polytherapy.” *BMC Psychiatry* 13 (2013): 179.
14. Park, Seon-Cheol, Myung-Soo Lee, Seung-Gul Kang and Seung-Hwan Lee. “Patterns of Antipsychotic Prescription to Patients with Schizophrenia in Korea: Results from the Health Insurance Review & Assessment Service-National Patient Sample.” *J Korean Med Sci* 29 (2014):719-728.
15. Thakkar, Karan B, Mangal M Jain, Gauri Billa and Abhijit Joshi, et al. “A Drug Utilization Study of Psychotropic Drugs Prescribed in the Psychiatry Outpatient Department of a Tertiary Care Hospital.” *J Clin Diagn Res* 7 (2013): 2759 – 2764.
16. Bret, Marie Christine, Pierre Bret, Antoine Pariente and Annie Fourier-Réglat. “The Use of Atypical Antipsychotics in French Psychiatric Hospitals.” *Pharm World Sci* 29 (2007): 551-556.
17. Komossa, Katja, Christine Rummel-Kluge, Heike Hunger and Franziska Schmid, et al. “Olanzapine Versus Other Atypical Antipsychotics for Schizophrenia.” *Cochrane Database Syst Rev* 17 (2010) :CD006654.
18. Ranjan, Raushan Kumar, Rajesh Kumar, Manish Kumar and Lalit Mohan,

et al. "Assessment of Drug Utilization Pattern and Adverse Drug Monitoring Among Patients on Antipsychotic Drugs in a Tertiary Care Hospital of Bihar: An Observational and Prospective Study." *Panacea J Med Sci* 10 (2020): 139-144.

19. Kingshuk, Lahon, Harsha M. Shetty, Amith Paramel, and Gyaneswar Sharma. "Pharmacoepidemiological Study of Antipsychotics in the Psychiatry Unit of a Tertiary Care Hospital: A Retrospective Descriptive Analysis." *Int J Nutr Pharmacol Neurol Dis* 2 (2012): 135-141.

20. Adesola, Ao, Ig Anozie, P Erohubie and Bo James. "Prevalence and Correlates of "High Dose" Antipsychotic Prescribing: Findings from a Hospital Audit." *Ann Med Health Sci Res* 3 (2013): 62-66.

21. Balaji, R, Sekkizhar M, Asok Kumar M and Nirmala P. "An Observational Study of Drug Utilisation Pattern and Pharmacovigilance of Antipsychotics." *Int J Curr Pharm Res* 9 (2017):56-62.

22. Tiihonen, Jari, Jari Haukka, Mark Taylor and Peter M Haddad, et al. "A Nationwide Cohort Study of Oral and Depot Antipsychotics after First Hospitalization for Schizophrenia." *Am J Psychiatry* 168 (2011): 603-609.

23. Booth, Diane, Kiran Hewitt, Katie Sims and Ozma Tahir. "Antipsychotic Guidelines-Treatment of Schizophrenia and Psychosis." *Berkshire Healthcare NHS Foundation Trust* 6 (2015): 1-62.

24. American Psychiatric Association. "Five Things Physicians and Patients Should Question." Choosing Wisely, April 22, (2015).

How to cite this article: Aburamadan, Haneen A.R, Sathvik Belagodu Sridhar, Talaat Matar Tadross and Atiqulla Shariff. "Assessment of Prescription Pattern of Antipsychotic Medications in a Psychiatry Inpatient Setting of a Secondary Care Hospital of United Arab Emirates." *Clin Schizophr Relat Psychoses* 15S (2021). Doi:10.3371/CSRP.AHSS.073021.