

Investigating the Relationship between the Duration of Hospitalization and Receiving Various Types of Typical and Atypical Antipsychotic Drugs in Patients with Schizophrenia: A Cross-Sectional Study

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Abstract

Background: Schizophrenia is a complex and heterogeneous disorder with diverse and multiple symptoms that cannot be distinguished based on the intrinsic disease process, the effects of drug therapy, or continuous and prolonged hospitalization. In recent years, significant advances have been made in schizophrenia.

Objectives: Due to the burden placed on relatives and caregivers of patients with schizophrenia and the community and the need to pay attention to the well-being of these patients, we examined these patients by receiving a variety of typical and atypical antipsychotic drugs during the treatment process.

Methods: 120 cases of patients with schizophrenia were hospitalized in Ebn-e-Sina Hospital in Bandar Abbas and were included in the study according to the inclusion and exclusion criteria. Information on the length of hospitalization and the type of treatment received was recorded in the researcher checklist. Data were statistically analyzed after entering SPSS software.

Results: Out of 120 patients studied, 33 (27/5%) were female, and 87 (72/5%) were male. Fifty-four patients (45%) were treated with typical drugs, and 66 patients (55%) were treated with atypical medications. The hospital stay of patients receiving atypical drugs was significantly more extended than that of patients treated with typical drugs.

Conclusions: This study showed that the length of hospitalization of patients who received atypical drugs is significantly longer than that of patients treated with typical drugs. It was also seen that in both gender groups, the length of hospitalization of patients who received atypical drugs was significantly more than patients treated with typical drugs.

Keywords: Schizophrenia • Typical antipsychotic drugs • Atypical antipsychotic drugs

Abbreviation: DSM-5: Diagnostic and Statistical Manual of Mental Disorders Fifth Edition; ECT: Electroconvulsive Therapy

Introduction

Schizophrenia is a complex and heterogeneous disorder with diverse and multiple symptoms that cannot be distinguished based on the intrinsic disease process, the effects of drug therapy, or continuous and prolonged hospitalization [1]. Schizophrenia affects approximately 24 million people or 1 in 300 people (0.32%)

worldwide. This rate is 1 in 222 people (0.45%) among adults [2,3]. People with schizophrenia are 2 to 3 times more likely to die early than the general population [4]. Onset typically occurs between the late teens and early 30 s, with the peak incidence occurring in males in the early to mid-twenties and in females in the late twenties [5-7]. Men are more affected by this disease, and the onset of the disease in them also occurs at a younger age [8]. The condition goes well in about 20% of people, and a few recover completely. Social problems,

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such as long-term unemployment, poverty, and homelessness, are common in these patients [9]. The average life expectancy of people with this disorder is 10-25 years less than the general population [10].

In the study of Law, et al., in 2008, the findings indicated that patients with schizophrenia who recently changed or strengthened their medications or were previously hospitalized face an increased risk of hospitalisation [11]. Also, in the study of Nader Mansouri in 2013 in Iran, it was found that old age, low level of education, unemployment, greater intensity of positive and negative symptoms, reduction of essential life skills in individuals, and objective burden on the family, insufficient knowledge about schizophrenia are the most critical factors related to hospitalisation [12]. Furthermore, only 31.3% of people with psychosis receive specialist mental health care [13]. Currently, the vast majority of people with schizophrenia worldwide are not receiving mental health care [14].

Antipsychotics are among the most effective drugs used in psychiatry in the maintenance therapy of schizophrenia, mania, or in psychotic reactions [15,16]. Atypical antipsychotics show a minimal propensity to induce extrapyramidal symptoms at therapeutic dosage, a lower risk of causing hyperprolactinemia, and higher efficacy in managing both positive and negative symptoms in schizophrenic patients. However, more research needs to be done regarding the issue [17].

Therefore, in this paper, considering the burden on relatives and caregivers of schizophrenic patients and society and the need to pay attention to the well-being of these patients, it is necessary to examine all aspects affecting the life and treatment of schizophrenic patients. As a result, we tried to investigate the relationship between these patients' hospitalisation duration and the receipt of typical and atypical antipsychotic drugs during the treatment process.

Material and Methods

Participants and design

This cross-sectional study was conducted on 120 schizophrenia patients admitted to Bandar Abbas Ebn-e-Sina Hospital from March 2020 to March 2021, using the convenience sampling method.

Patients were included in the study based on the inclusion and exclusion criteria. Patients referred to Ebne-Sina medical center with a primary diagnosis of schizophrenia and those treated at the center with a final diagnosis of schizophrenia were included in the study; because patients who were not admitted for the first time may have been associated with confounding factors and variables. Regarding

groups, both groups were in the same range, and none had a physical illness at the same time as their schizophrenia. Patients were hospitalised based on the initial diagnosis of the psychiatrist and Diagnostic and Statistical Manual of Mental Disorders fifth edition (DSM-5) criteria. A group of patients were treated with typical antipsychotic drugs, and another group with atypical antipsychotic medications until the acute phase of the disease subsided, and the patients were discharged. In this study, the duration of hospitalisation of patients in both groups was measured to reduce the disease burden. However, patients admitted to the centre with the diagnosis of other psychiatric disorders and all patients with a primary diagnosis of schizophrenia who faced a change in the final diagnosis were excluded from the study. Also, all patients treated with Electroconvulsive Therapy (ECT) and patients diagnosed with schizophrenia and treated with two antipsychotic drugs with a therapeutic dose were not allowed to enter the study.

Measurements

Demographic information, age, co-occurring psychotic disorders, medication, drug use, duration of illness, duration of hospitalisation, and history of psychiatric problems in the family were extracted from the patient records.

Statistical methods

After collecting the data, they were entered into SPSS version 21 software and analysed by descriptive statistics (mean and standard deviation of quantitative variables and frequency percentage). The Kolmogorov-Smirnov test evaluated the distribution of quantitative data in groups. If the data distribution was normal in each group, the parametric independent t-test was used; otherwise, the Mann-Whitney or Spearman test was used. A P-value less than 0.05 were considered significant.

Results

A total of 120 Schizophrenia patients were analysed in this study. Among the studied patients, 33 (27.5%) were women, and 87 (72.5%) were men; 54 patients (0.45%) were treated with typical drugs, and 66 patients (0.55%) were treated with atypical medications. About 109 patients had a history of previous hospitalizations, and 51 had a history of drug use. The average age of the patients was 29.52 ± 9.89 years. On average, 6.08 ± 3.23 years had passed since the first episode of their disease. The average length of hospitalization of the patients was 13.38 ± 3.97 days (Tables 1 and 2).

Variable		Number (Percentage)
Gender	Female	33 (27.5)
	Male	87 (72.5)
Type of treatment	Typical	54 (45.0)
	Atypical	66 (55.0)
Hospitalisation	No	11 (9.2)

	Yes	109 (90.8)
History of drug use	No	69 (57.5)
	Yes	51 (42.5)

Table 1. Demographic information of the studied patients.

Variable	Mean ± standard deviation
Age (years)	9.89 ± 29.52
Duration of illness (years)	3.23 ± 6.08
Length of stay (days)	3.97 ± 13.38

Table 2. Demographic information of the studied patients.

Based on the obtained information, the difference in patients' hospitalisation duration in two treatment groups with typical and atypical drugs was significant ($P < 0.05$). It is demonstrated that the

length of hospitalisation of patients who received atypical drugs is significantly longer than that of patients treated with typical drugs (Table 3).

Duration of hospitalisation/Type of treatment	Mean ± standard deviation	Mann-Whitney test statistic	P-value
Typic	2.41 ± 10.72	6.831-	0.000
Atypic	3.67 ± 15.55		

Table 3. Investigating the relationship between the duration of hospitalisation of the studied subjects and the type of treatment.

The difference in patients' hospitalisation duration in two treatment groups with typical and atypical drugs was significant in both genders ($P < 0.05$). It is seen that in both

gender groups, the duration of hospitalisation of patients who received atypical drugs was significantly more than those treated with typical drugs (Table 4).

Gender	Duration of hospitalization/Type of treatment	Mean ± standard deviation	Mann-Whitney test statistic	P-value
Female	Typic	2.06 ± 9.77	3.182-	0.001
	Atypic	4.98 ± 15.45		
Male	Typic	2.44 ± 11.38	5.378-	0.001
	Atypic	3.40 ± 15.56		

Table 4. Investigating the relationship between the duration of hospitalisation of the studied subjects and the type of treatment according to gender.

Considering that there were only 11 patients in the group without hospitalisation history and all of them were treated with atypical drugs, it was impossible to compare the two types of treatment in this group. Based on the obtained information, in the group with a history of hospitalisation, the difference in the duration of

hospitalisation of patients with typical and atypical drugs was significant ($P < 0.05$). In patients with a history of previous hospitalisation, the length of hospitalisation of those who received atypical drugs is significantly longer than those treated with typical drugs (Table 5).

Hospitalisation history	Duration of hospitalization/Type of treatment	Mean ± standard deviation	Mann-Whitney test statistic	P-value
No	Typic	-	-	-
	Atypic	4.23 ± 15.09		
Yes	Typic	2.41 ± 10.72	6.770-	0.000
	Atypic	3.58 ± 15.64		

Table 5. Investigating the relationship between the duration of hospitalisation of the studied subjects and the type of treatment according to the history of hospitalisation.

The difference in patients' hospitalisation duration in two treatment groups with typical and atypical drugs was significant in both groups of patients with and without a family history ($P < 0.05$). In both categories of patients

with and without a family history, the duration of hospitalisation of patients who received atypical drugs is significantly longer than that of patients treated with typical drugs (Table 6).

History of psychiatric disorder	Duration of hospitalization/ Type of treatment	Mean ± standard deviation	Mann-Whitney test statistic	P-value
No	Typic	2.48 ± 10.95	5.702-	0.000
	Atypic	3.83 ± 15.55		
Yes	Typic	2.08 ± 10.00	3.502-	0.000
	Atypic	2.84 ± 15.55		

Table 6. Investigating the relationship between the duration of hospitalisation of the studied subjects and the type of treatment according to the history of family disorder.

Based on the obtained information, the difference in the duration of hospitalisation of patients in two groups of treatment with typical and atypical drugs was significant in all three categories of patients with duration of illness less than one year, between 1 to 5 years,

and more than five years ($P < 0.05$). In all three categories of patients with different disease onset durations, the duration of hospitalisation of patients who received atypical drugs is significantly longer than that of patients treated with typical drugs (Table 7).

Duration of illness	Duration of hospitalization/ Type of treatment	Mean ± standard deviation	Mann-Whitney test statistic	P-value
Less than one year	Typic	1.07 ± 10.00	2.711-	0.007
	Atypic	3.83 ± 14.50		
Between 1 and 5 years	Typic	2.14 ± 11.58	4.450-	0.000
	Atypic	3.01 ± 16.32		
More than five years	Typic	2.61 ± 10.04	5.253-	0.000
	Atypic	3.94 ± 15.34		

Table 7. Investigating the relationship between the duration of hospitalisation of the studied subjects and the type of treatment according to the duration of the disease.

The difference in patients' hospitalisation duration in two treatment groups with typical and atypical drugs was significant in both groups of patients with and without a history of drug use ($P < 0.05$). In both groups of patients

with and without a history of drug use, the length of hospitalisation of patients who received atypical drugs is significantly longer than those treated with typical drugs (Table 8).

History of drug use	Duration of hospitalization/Type of treatment	Mean ± standard deviation	Mann-Whitney test statistic	P-value
No	Typic	2.68 ± 10.78	4.831-	0.000
	Atypic	4.03 ± 15.70		
Yes	Typic	1.81 ± 10.61	4.791-	0.000
	Atypic	3.32 ± 15.39		

Table 8. Investigating the relationship between the duration of hospitalisation of the studied subjects and the type of treatment according to the history of drug use.

Discussion

In this research, 120 patients were studied, of which 33 (27.5%) were women, and 87 (72.5%) were men. Fifty-four patients (0.45%) were treated with typical drugs, and 66 patients (0.55%) were treated with atypical medications. One hundred nine patients had a history of previous hospitalisation, and 51 had a history of drug use.

This research showed that patients treated with atypical drugs are hospitalised more often than those who receive typical drugs [18]. This difference was also statistically significant. In the study of Stargardt T and his colleagues, it was also seen that patients treated with atypical antipsychotic drugs have a more extended

hospitalization period, which was confirmed by our study. On the other hand, in some studies, such as the study by Mousavi and his colleagues, it was also seen that patients treated with atypical antipsychotic drugs have a higher chance of developing diabetes. According to the evidence in these studies, the choice of typical drugs is still the priority of doctors; however, these drugs also have their disadvantages and side effects. As stated in the study of Jafari and his colleagues, the severity of complications in the group treated with atypical drugs was much higher than in the patients treated with typical drugs.

In the continuation of this research, it was seen that the length of hospitalization in male and female patients who received atypical drugs was significantly longer than that of patients treated with typical drugs, which was also statistically significant. In the study of Stargardt T. and his colleagues, it was also seen that in both genders, the length of hospitalisation of patients who took atypical drugs was longer than the other group who received typical drugs. This finding also confirmed the results of our research.

In patients with a history of previous hospitalisation, the length of hospitalisation of those who received atypical drugs is significantly longer than those treated with typical drugs. Although such a finding was not seen in previous studies, in the study of Kessler, et al., it was seen that patients with a history of hospitalisation have a longer length of hospitalisation than other patients.

This study showed that in both categories of patients with and without a family history, the duration of hospitalisation for patients who received atypical drugs is significantly more than for patients treated with typical drugs. In the study of Kessler and his colleagues, it was also seen that the duration of hospitalisation in patients according to their family history was also higher in those treated with atypical drugs, which also confirmed our study. On the other hand, in the study of Kessler and his colleagues, it was also stated that among the patients with schizophrenia, the more the number of accompanying psychiatric diagnoses, the more the number of visits to the emergency room and hospitalisation, as well as the length of the patient's hospitalisation. In this study, it was also seen that patients with a history of drug use had more extended hospitalisation periods than others. However, the noteworthy point was that in both categories of patients with and without a history of drug use, the length of hospitalisation of patients who received atypical drugs was and is significantly more than patients treated with typical drugs.

Conclusion

This study showed that the length of hospitalization of patients who received atypical drugs is significantly longer than that of patients treated with typical drugs. It was also seen that in both gender groups, the length of hospitalisation of patients who received atypical drugs was significantly more than patients treated with typical drugs.

In further investigations, it was seen that in patients with a history of previous hospitalisation, the length of hospitalisation of those who received atypical drugs is significantly longer than the patients treated with typical drugs; It was also seen that in both categories of patients with and without a family history, the duration of hospitalisation of patients who received atypical drugs is significantly longer than that of patients treated with typical drugs.

Finally, it was seen that in both categories of patients with and without a history of drug use, the duration of hospitalisation of patients who received atypical drugs is significantly longer than that of patients treated with typical drugs.

Limitations

One of the limitations of this study was that the information of some files in the archives was distorted in different parts of the file. Also, a small population was studied, and the study time was short. Future studies should be conducted with larger sample size and extended period.

Ethical Considerations

This study is approved under the ethical approval code of IR.HUMS.REC.1400.275, and all participants signed the written informed consent. Furthermore, after obtaining the necessary permits, the information of Schizophrenia patients was extracted from their files.

Ethics Approval and Consent to Participate

Hormozgan University of Medical Sciences Ethical Committee approved the study under the ethical code of IR.HUMS.REC.1400.275.

Consent for Publication

Consent for publication was obtained from all participants.

Availability of Data and Materials

The data sets used during the current study are available from the corresponding author upon reasonable request.

Competing interests

The authors declare no conflict of interest.

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Authors' Contributions

AM made a substantial contribution to the design and conception of the study, performed acquisition of data, performed statistical analysis of the data and interpretation of data. SN made a significant contribution to the design and concept of the study, completed the acquisition of data, and performed statistical analysis of the data and interpretation of data. PH made a substantial contribution design and conception of the study and performed data acquisition. ASA made a significant contribution to the design and concept of the research and completed data acquisition. FKM made a substantial

contribution of design and concept of the study, performed data acquisition and wrote the manuscript. MSA made a considerable contribution in design and conception of the study, performed the data acquisition and wrote the manuscript. HS made a significant contribution to the design and concept of the research and revisited the manuscript critically. FM made a substantial contribution to the study's design and conception, reviewing the manuscript critically.

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