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# Aggressiveness in Institutionalised Schizophrenic Patients and the Selection of Antipsychotics

Klementina Ružić<sup>1</sup>, Tanja Frančišković<sup>2</sup>, Zoran Šuković<sup>2</sup>, Elizabeta Dadić Hero<sup>3</sup>, Ika Rončević-Gržeta<sup>2</sup>, Mirjana Graovac<sup>2</sup> and Tija Žarković Palijan<sup>4</sup>

<sup>1</sup> University of Rijeka, Rijeka University Hospital Center, Psychiatric Clinic Rijeka, Rijeka, Croatia

<sup>2</sup> University of Rijeka, Rijeka University Hospital Center, Department of Psychiatry and Psychological Medicine, Rijeka, Croatia

<sup>3</sup> University of Rijeka, Rijeka University Hospital Center, Community Primary Health Centre County Primorsko-goranska, Department of Social medicine and Epidemiology, Rijeka, Croatia

<sup>4</sup> »Dr. Ivan Barbot« Neuropsychiatric Hospital, Department of Forensic Psychiatry, Popovača, Croatia

## ABSTRACT

*The selection of antipsychotics as medications used primarily for treating schizophrenia and disorders similar to schizophrenia is an important aspect of the treatment of forensic patients. This study examines the effect of antipsychotics selection (typical or atypical) on the level of aggressiveness, side effects and the hospitalisation length. The research is conducted on 98 psychiatric patients diagnosed with schizophrenia or similar disorders (F 20-F 29) in two forensic psychiatric institutions. The patients committed aggressive criminal offence in state of insanity. The patients are currently treated in inpatient psychiatric institutions. The research was conducted by using the Aggressiveness Questionnaire (AG-87), the Simpson-Angus Scale for the assessment of extrapyramidal side effects, the Barnes Akathisia Rating Scale for the assessment of akathisia and the Abnormal Involuntary Movement Scale. The results show no significant difference between the groups of patients treated with typical and atypical antipsychotics in all the variables.*

**Key words:** forensic patients, schizophrenia, antipsychotics, aggressiveness, side effects

## Introduction

There are many dilemmas regarding the issue of aggressiveness in mental patients, especially in patients suffering from schizophrenia. Some authors hold that comorbidity with personality disorder and/or substance abuse elevates the level of aggressiveness in schizophrenic patients<sup>1-8</sup>. The regulation and prediction of aggressiveness is extremely important factor in treating mental patients who committed criminal offence, during their stay in the institution as well as after discharge.

In general, the medication that affects the basic illness by reducing the psychopathological manifestation should also reduce the level of aggressiveness<sup>9,10</sup>. In order to achieve this, we need to prescribe the medication that corresponds to recommended algorithm<sup>11</sup>, has the minimum of undesirable effects and works the best for a patient. Patient cooperation joined with optimum medication efficiency is the best prognostic factor not only in

relapse prevention, but also in prevention of aggressive offence<sup>12</sup>.

Antipsychotics are the first choice in the treatment of schizophrenic patients in penal conditions too. Typical antipsychotics, which have been in use for fifty years, affect the positive symptoms of schizophrenia, but they also cause side effects, especially the extrapyramidal symptoms which occur in 15 to 31 percent of the cases, even 60 percent according to some sources<sup>13</sup>. Apart from being unpleasant, these side effects stigmatize the patient and reduce patient cooperation.

Moreover, there are some indications that akathisia is the risk factor for aggressiveness<sup>14,15</sup>. It is not entirely clear whether antipsychotics affect the aggressiveness selectively and independently of their antipsychotic and sedative effects<sup>16</sup>.

In the last decade atypical antipsychotics are more and more in use although the evidence on the superiority of atypicals is mixed and it is clear that there is no »class effect«, whereby all atypicals have superior efficacy compared to typicals. Many research indicate that certain atypical antipsychotics, especially clozapine, can reduce persistent aggressiveness in schizophrenic patients<sup>9,17,18</sup>.

Fewer side effects could offer the possibility for a better regulation of aggressiveness in schizophrenic patients and easier application of other therapeutic methods which improve the resocialisation of those patients. This make atypicals possible first choice medication in forensic schizophrenic patients.

The aim of this research was to determine whether the selection of antipsychotics affects the level of aggressiveness, the manifestation of side effects and the length of current hospitalisation in forensic patients.

## Methods and Participants

The research was conducted in two forensic psychiatric institutions (Popovača and Vrapče, Croatia). The inclusion criterion was that psychiatric patients committed murder or attempted murder in state of insanity, after which they were sent to psychiatric institution. The exclusion criterion was comorbidity, i.e., the research did not include patients with personality disorder and a history of substance abuse. At the time of research, psychiatric hospital in Popovača had 210 forensic patients, while hospital in Vrapče had 70 patients. Ninetyeight patients (48 from Popovača, 50 from Vrapče) with schizophrenia or psychotic disorder similar to schizophrenia (F 20 – F 29) according ICD 10 and DSM-IV met the inclusion criteria. All selected patients agreed to participate in the research and gave their written informed consent. Both sexes were included in unequal proportions. The participants were divided into two groups: the patients treated with typical antipsychotics (N=56) and the patients treated with atypical antipsychotics (N=42). The respondents were aged 23 to 76, with a mean age of 47.3 years ( $M = 47.37$  years,  $sd = 13.2$ ).

We used the patients' case histories to obtain demographic data, diagnosis, form of therapy and medication dosage, information on criminal offence, the level of competence at the time of committing the offence and information on earlier and current hospitalisations (safety measures). Questionnaires were used in further procedure.

Aggressiveness was assessed through the Aggressiveness Questionnaire (AG-87)<sup>19,20</sup>. The questionnaire is based on Žužul's research on aggressiveness. The questionnaire specifies the level of latent aggressiveness, the level of manifest aggressiveness and the extent of difference between them. The questionnaire contains 5 subscales: verbal manifest aggressiveness (VM), physical manifest aggressiveness (PM), indirect aggressiveness (IN), verbal latent aggressiveness (VL) and physical latent aggressiveness (PL). Participants rate themselves on the five-point scale in terms of how often they would

behave in a described manner in particular situations. Minimum possible score on one subscale is 15 and maximum is 75.

Extrapyramidal side effects were assessed through the Simpson-Angus Scale (SAS)<sup>21</sup> which consists of ten items rating extrapyramidal side effects: leg pendulousness, arm dropping, shoulder shaking, elbow rigidity, wrist rigidity, head rotation, glabella test, salivation and akathisia. The assessment is performed by a physician (therapist) trained for the scale assessment. Participants generally rate themselves on the five-point scale. The minimum score is 10, while the maximum totals 50 points.

Akathisia was assessed by the Barnes Akathisia Rating Scale (BARS)<sup>23</sup>. The patient is observed in the sitting and the standing position (two minutes in each position), while engaged in an informal conversation. The scale consists of four questions related to the characteristics of akathisia: objective symptoms, subjective symptoms (awareness of restlessness), subjective symptoms (distress related to restlessness) and global clinical assessment of akathisia. Participants generally rate themselves on the five-point scale. Minimum possible score is 0, maximum score totals 20 points.

The Abnormal Involuntary Movement Scale (AIMS)<sup>23</sup> was used to assess abnormal involuntary movements. This is performed by a physician. The questionnaire consists of 12 questions.

Statistical analysis was carried out using the SPSS, version 11. Descriptive statistic parameters (arithmetic mean and standard deviation) and result distribution were calculated first, for all the variables. Internal consistency reliability coefficient (Cronbach alpha) for all the questionnaires used in the research was also calculated. Cronbach alpha was satisfactory. The independent samples t-test was used to determine the differences between the two groups of patients (the group of patients treated with typical antipsychotics and the group of patients taking atypical antipsychotics) in the following variables: verbal manifest, physical manifest, verbal latent and physical latent aggressiveness, as well as in the overall level of aggressiveness, the amount of extrapyramidal side effects, akathisia, abnormal involuntary movements and the hospitalisation length.

## Results

Table 1 shows the means and standard deviations, the number of participants in each group, t-values and significance levels (p-values) for all the variables. We have not found any statistically significant difference between the participants receiving typical antipsychotics therapy and the participants receiving atypical antipsychotics therapy, regardless of the type of aggressiveness, the overall level of aggressiveness, the amount of extrapyramidal side effects, akathisia, abnormal involuntary movements and the hospitalisation length.

**TABLE 1**  
 DESCRIPTIVE ANALYSIS OF THE APPLIED MEASURES AND DIFFERENCES BETWEEN THE PATIENTS RECEIVING TYPICAL ANTIPSYCHOTICS THERAPY AND THE PATIENTS RECEIVING ATYPICAL ANTIPSYCHOTICS THERAPY IN THE ASSESSED VARIABLES

Other variables	The groups of participants			
	The entire sample (n=98)	Participants receiving typical antipsychotics therapy (n=56)	Participants receiving atypical antipsychotics therapy (n=42)	
Verbal manifest aggressiveness	m	31.98	31.89	32.5
	sd	12.27	12.22	12.34
	t		0.24	
	p		0.809	
Physical manifest aggressiveness	m	25.89	26.46	25.38
	sd	10.51	10.9	10.05
	t		-0.5	
	p		0.616	
Indirect aggressiveness	m	26.61	26.75	26.69
	sd	10.34	10.38	10.37
	t		-0.03	
	p		0.978	
Verbal latent aggressiveness	m	32.13	32.55	31.98
	sd	11.61	11.45	11.79
	t		-0.24	
	p		0.808	
Pysical latent aggressiveness	m	25.56	26.77	26.55
	sd	10.98	10.94	11.13
	t		-0.1	
	p		0.922	
Aggressiveness	m	143.16	144.43	143.10
	sd	49.13	49.32	48.49
	t		-0.13	
	p		0.895	
Ekstrapyramidal side effects	m	10.64	10.71	10.6
	sd	2.4	1.97	2.91
	t		-0.23	
	p		0.819	
Akathisia	m	0.53	0.6	0.45
	sd	1.22	1.28	1.15
	t		-0.59	
	p		0.559	
Abnormal involunt. movements	m	3.23	3.81	2.38
	sd	4.52	5.08	3.6
	t		-1.55	
	p		0.124	
Current hospitalisation length	m	71.55	76.48	64.98
	sd	64.58	66.56	62.64
	t		-0.87	
	p		0.387	

The analysis of simultaneous application of multiple antipsychotics (Table 2) in patients receiving typical or atypical antipsychotics showed that prescription of multiple drugs is more common when typical antipsychotics were prescribed. A higher percentage of patients treated with a combination of two or more antipsychotics belonged to the group receiving typical neuroleptic therapy.

## Discussion

The results of this research have not shown any difference between the level of aggressiveness in forensic patients taking typical and patients taking atypical antipsychotics. In addition, the occurrence of side effects and the average length of hospitalisation do not differ signifi-

cantly in these two groups of patients. Even though many research indicate that atypics offer a greater possibility of regulation of the positive and negative symptoms of schizophrenia<sup>24,25</sup>, our results are consistent with recent studies which do not make any distinction between the effects of typical and atypical antipsychotics regarding symptom reduction.

Both groups of antipsychotics produced the same effect on general aggressiveness and other forms of aggressiveness. In addition, the intensity of side effects in both groups of patients is the same. The results of the majority of current research speak in favour of the atypics precisely for milder side effects<sup>9,26</sup>.

In addition we find that polypharmacy in antipsychotics therapy is reduced in patients treated with atypical antipsychotics. Although some atypicals like clozapine and quetiapine have the most complex initiation regimen of all of the antipsychotics and majority of atypicals only come in oral form, the long term dosage regime once a day for most of them seem to be more acceptable and practical for both, the patients and doctors. Simpler long term scheme of administration and dosage and a better side-effect profile ascribed to atypical antipsychotics may help avoiding the practice of using multiple medication.

This research contains certain limitations. A relatively small number of participants provide a limited pos-

**TABLE 2**  
THE ANALYSIS OF ADMINISTERING MULTIPLE ANTIPSYCHOTICS TO PATIENTS RECEIVING TYPICAL OR ATYPICAL ANTIPSYCHOTICS THERAPY

		Monotherapy	More than one psychotropic medication	Total
Typical	N	22	34	56
	%	22.45%	34.69%	57.14%
Atypical	N	24	18	42
	%	24.49%	18.37%	42.86%
Total	N	46	52	98
	%	46.94%	53.06%	100%

sibility of result generalisation. The length of hospitalisation for psychiatric patients is not always related to the improvement of the clinical picture. Finally, aggressiveness is just one of the factors in mental state assessment, although a very important issue regarding forensic patients.

We conclude that typical and atypical antipsychotics proved to be comparably effective in the regulation of aggressiveness in schizophrenic forensic patients, with a comparable manifestation of side effects.

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Tija Žarković-Palijan

»Dr. Ivan Barbot« Neuropsychiatric Hospital, Department of Forensic Psychiatry, Jelengradska 1, 44317 Popovača, Croatia  
e-mail: tija.zarkovic-palijan@sk.t-com.hr

## **ODABIR ANTIPSIHOTIKA I AGRESIVNOST KOD SHIZOFRENIH PACIJENATA U USTANOVAMA ZATVORENOG TIPA**

### **S A Ž E T A K**

Odabir antipsihotika kao lijekova koji se primarno upotrebljavaju za liječenje shizofrenije i shizofreniji sličnih poremećaja važan je aspekt tretmana forenzičnih bolesnika. Ovaj rad istražuje utjecaj odabira vrste antipsihotika (tipičnih ili atipičnih) na stupanj agresivnosti, izraženost nuspojava i dužinu sadašnje hospitalizacije. Istraživanje je provedeno u dvije forenzične psihijatrijske ustanove na 98 psihijatrijskih bolesnika kod kojih je dijagnosticirana shizofrenija ili psihotični poremećaj sličan shizofreniji (F 20-F 29). Kazneno djelo počinili su u stanju neubrojivosti i imalo je obilježja agresivnog čina. Zbog sigurnosne mjere nalaze se na liječenju u psihijatrijskoj ustanovi zatvorenog tipa. U istraživanju je korišten upitnik za procjenu agresivnosti (AG-87), Simpson-Angus skala (SAS) za ispitivanje ekstrapiramidalnih nuspojava, Barnesova skala (BARS) za procjenu akitazije i Upitnik nevoljnih abnormalnih pokreta (Abnormal involuntary movement scale (AIMS)). Rezultati pokazuju da nema značajne razlike između skupine na terapiji tipičnim antipsihoticima i skupine na terapiji atipičnim antipsihoticima na svim ispitivanim varijablama. S obzirom na preporučene doze antipsihotika za forenzične bolesnike ispitanici su hipodozirani.