

Influence of pharmaceuticals on the development of obesity

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Abstract

Intradaction: Ukraine has been at war for almost a year. This cannot but affect the mental health of the nation. Anxiety-depressive disorders (ADD) and other manifestations of psychological health disorders are increasingly registered among our citizens. At the same time, it is well known that certain groups of antipsychotic and antidepressant drugs have an impact on body weight (BW).

Material and methods: By design, the study involved 154 patients aged 18 to 55 years who were not diagnosed with obesity prior to the war. The study was conducted at the Department of Family Medicine and Polyclinic Therapy of the Odesa National Medical University. By design, patients were divided into three groups: 1 group - patients who received antipsychotics for the treatment of ADD; 2 group - patients who received antidepressants and group 3 - patients who did not receive pharmacological treatment of ADD.

Results: Study was showed that 53.90% of patients had depression of varying degrees, 46.10% of patients had anxiety. The general tendency of increasing the patient's BW corresponds to the global practice. Thus, the greatest increase in BW was observed in 38 patients (24.66%) who took antipsychotics, especially Clozapine, Olazapine or Haloperidol. These patients showed an increase, sometimes even up to 10-12 kg over 6 months of treatment.

Conclusion: The patients who did not take drugs for the treatment of TDR, namely 29 patients (18.83%), had a tendency of increasing BW similar to the increase in BW when taking antidepressants, namely 3.1 ± 0.41 kg against 4.2 ± 0.52 kg in the antipsychotic group. The study revealed that 39 patients (25.32%) increased their BW from a healthy BW to a BMI of 30 kg/m², which corresponds to the diagnosis of obesity. The diagnosis of OW after treatment of ADD caused by the war in Ukraine was received by 49 patients (31.82%).

Intraduction.

Ukraine has been at war for almost a year. This cannot but affect the mental health of the nation. Anxiety-depressive disorders (ADD) and other manifestations of psychological health disorders are increasingly registered among our citizens. At the same time, it is well known that certain groups of antipsychotic and antidepressant drugs have an impact on body weight (BW).

The studies indicate that antipsychotic drugs are associated with an increase in BW and have the greatest impact on it¹. During short-term use, antipsychotic drugs are associated with an increase in BW of approximately 3.2 kg, and with long-term use with an increase in BW of 5.3 kg compared to placebo control². Drugs such as Olanzapine and Clozapine have the greatest effect on increasing BW³, their use can increase the patient's BW by up to 10 kg in 6 months of use¹.

Antipsychotics are thought to increase BW due to changes in appetite and changes in the patient's metabolism⁴. It has been established that starting therapy with medications that have less impact on BW, such as Haloperidol, Lurasidone, Ziprasidone, Aripiprazole, and Amisulpiride, may be a better treatment option if it is clinically appropriate^{5,6}. At the same time, there is a need to consider the duration of therapy, namely whether drugs are needed for a long time or it is possible to limit the use of antipsychotics to a short course⁷.

Antidepressants are associated with a more moderate increase in BW than antipsychotics with recent studies indicating a 2-5 kg increase in BW when taking tricyclic antidepressants, monoamine oxidase inhibitors and selective serotonin reuptake inhibitors¹. However, antidepressants may have a greater overall increase in BW, as there are more patients with depression than with schizophrenia³. After starting antidepressants, it is necessary to carefully monitor changes in BW, as early changes indicate a high degree of prediction of long-term changes⁸. Thus, clinicians should consider early intervention to prevent excessive BW increase if possible.

An increase in BW while taking antidepressants may be associated with increased appetite, but may also indicate changes in the underlying mood disorders¹.

Therefore, based on all of the above, the **purpose** of our study was to determine the effect of pharmaceuticals on the development of obesity in the Ukrainian population during the war.

Materials and study methods.

By design, the study involved 154 patients aged 18 to 55 years who were not diagnosed with obesity prior to the war. The study was conducted at the Department of Family Medicine and Polyclinic Therapy of the Odesa National Medical University. By design, patients were divided into three groups: 1 group - patients who received antipsychotics for the treatment of ADD; 2 group - patients who received antidepressants and group 3 - patients who did not receive pharmacological treatment of ADD.

The diagnosis of overweight (OW) or obesity and ADD was made according to international regulatory documents^{9,10}. The patients were included in the study after explaining the nature and purpose of the study and signing an informed voluntary consent.

Statistical processing of the results was carried out using methods of parametric and nonparametric analysis. Descriptive characteristics for indicators measured on a quantitative scale were presented by median and mean value (position indicators). In the comparative analysis of independent groups, the Student's t-test for unpaired samples (subject to the conditions of homoscedasticity and normal distribution of data) and the Mann-Whitney test (for heteroscedastic data with a different type of distribution) were used.

The relation between the features was studied using Spearman's correlation analysis (r), Pearson's χ^2 criterion was used to assess the relation between qualitative and quantitative features.

Results.

According to the design, patients included in the study did not have a diagnosis of OW or obesity prior to the war and did not have ADD. But, during 10 months of full-scale war the situation has changed. The average age of the examined patients was 35.3 ± 2.13 years, among them there were 91 women (59.09%) and 63 men (40.91%). During the anthropometric examination, the average body mass index (BMI) was 22.35 ± 0.65 kg/m², waist size in women was 75.25 ± 0.35 cm, and in men 89.24 ± 0.38 cm. Also, the level of visceral fat was determined with the help of bioelectrical impedance analysis, which averaged 4.05 ± 0.12 conventional units. During the screening examination, it was established that the vast majority of patients had anxiety (A) or depression (D) of varying severity (Table 1).

Table 1

Anxiety-depressive disorders in the patients examined

Feature	Number of patients (n)	Percentage of patients (%)
Depression	83	53.90
Anxiety	71	46.10

Table 1 shows that 53.90% of patients had depression of varying degrees, 46.10% of patients had anxiety.

The screening studies were conducted in the framework of family doctor's outpatient clinics. After diagnosis of ADD, the patients were referred to a psychologist or psychotherapist for further examination and prescription of appropriate therapy.

The dynamics of BW changes according to the class of drugs was evaluated in 1, 3 and 6 months of therapy (Table 2).

Table 2

Dynamics of changes in patient's body weight

Feature	Visit	Increase in body weight (kg)
Depression	Start of follow-up	0
	In 1 month of treatment	2.1 ± 0.41
	In 3 months of treatment	4.7 ± 0.74
	In 6 months of treatment	6.8 ± 0.35
Anxiety	Start of follow-up	0
	In 1 month of treatment	1.1 ± 0.12
	In 3 months of treatment	2.1 ± 0.35
	In 6 months of treatment	4.2 ± 0.52
Not taking the drug	Start of follow-up	0
	In 1 month of treatment	1.4 ± 0.64
	In 3 months of treatment	2.2 ± 0.52
	In 6 months of treatment	3.1 ± 0.41

As can be seen from Table 2, the general tendency of increasing the patient's BW corresponds to the global practice. Thus, the greatest increase in BW was observed in 38 patients (24.66%) who took antipsychotics, especially Clozapine, Olazapine or Haloperidol.

These patients showed an increase, sometimes even up to 10-12 kg over 6 months of treatment.

Antidepressants had less effect on the increase in BW in 87 patients (56.49%), the average increase over 6 months of treatment was 4.2 ± 0.52 kg. The most frequent increase in BW was noted when taking Amitriptyline, Mirtazapine, Sertraline, Phenelzine and other drugs of these groups.

It is interesting that the group of patients who did not take drugs for the treatment of ADD, namely 29 patients (18.83%), had a tendency to increase BW similar to the increase in BW when taking antidepressant drugs.

As for other anthropometric parameters, an average increase in waist size in both men and women by 2.4 ± 0.87 cm was observed. There were no statistically significant changes in the measurements of visceral fat level.

The study revealed that 39 patients (25.32%) increased their BW from a healthy BW to a BMI of 30 kg/m², which corresponds to the diagnosis of obesity. The diagnosis of OW after treatment of ADD caused by the war in Ukraine was received by 49 patients (31.82%).

The results presented are interim, and the study continues to address the problem of increasing BW of patients in response to the use of drugs for the treatment of ADD.

Conclusions:

- 1) The full-scale war in Ukraine is a trigger factor for the development of anxiety-depressive disorders in Ukrainian citizens.
- 2) Most of the examined patients had depressive disorders.
- 3) During 6 months of follow-up, the average increase in body weight was the highest in the group of patients taking antipsychotics, namely 6.8 ± 0.35 kg.
- 4) The patients who did not take drugs for the treatment of TDR, namely 29 patients (18.83%), had a tendency of increasing BW similar to the increase in BW when taking antidepressants, namely 3.1 ± 0.41 kg against 4.2 ± 0.52 kg in the antipsychotic group.
- 5) The study revealed that 39 patients (25.32%) increased their BW from a healthy BW to a BMI of 30 kg/m², which corresponds to the diagnosis of obesity. The diagnosis of OW after treatment of ADD caused by the war in Ukraine was received by 49 patients (31.82%).

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