

## **Multidisciplinary Organizational and Legal, Forensic and Pharmaceutical, Medical and Immunological Researches in The Organization and Management of Pharmaceutical Competencies During the Circulation of Drugs in The Relief of Alcoholic Addiction**

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**Abstract.** During the circulation of drugs within the multidisciplinary organizational and legal, forensic and pharmaceutical, medical and immunological researches in the organization and management of pharmaceutical competencies, a comparative analysis of the cost of pharmacotherapy in the relief of alcoholism to determine the most cost-effective treatment regimen. Two modern schemes of pharmacotherapy for relief of drunken forms of alcohol dependence were developed. During the circulation of medicines, eleven drugs were selected for the main group and ten drugs for the control group. Organized a comparative analysis of the cost of basic pharmacotherapy in the relief of

alcoholic dependence to determine the most cost-effective treatment regimen. Found that the cost of the basic pharmacotherapy scheme for the experimental group of patients is 40% cheaper than the basic pharmacotherapy scheme for the control group. It was established that the scheme of the course of pharmacotherapy in the relief of alcoholic addictions for the research group is more effective, safer, economical and has fewer side effects on the patient's body.

**Keywords:** multidisciplinary research, healthcare, organization and management of pharmacy, forensic pharmacy, narcology, competencies, drugs, alcohol dependence.

**Introduction.** Organizational and legal [1, 2], forensic and pharmaceutical [3-7], medical and immunological [8-21] studies show that in the context of the COVID-19 epidemic, Ukraine's integration into the European Union and in-depth cooperation with leading pharmaceutical countries needs further improvement of legislation, regulations and scientific and methodological materials in the field of health and pharmaceutical industry on the organization and management of pharmaceutical and medical competencies [22-31].

At a difficult time for the country, it is medical and pharmaceutical workers who accept the call and stay in municipal non-profit enterprises, hospitals and pharmacies of all forms of ownership to organize medical and pharmaceutical competencies to ensure the circulation system (supply, storage, accounting, selling, production of extemporal formulation [32, 33], etc.) of vital medicines of all segments of the population in the prevention of covid, postcovid, longcovid, comorbid cancer, cardiovascular, mental, narcological diseases, tuberculosis, diabetes and others in accordance with ICD-11 [34-37].

It is alcohol that is causally related to the abuse of alcoholic beverages (beer, cognac, vodka, wine, etc.), alcohol dependence and the commission of illegal acts and crimes (murder, rape, traffic accident, hooliganism, infliction of grievous, moderate, or light bodily injuries, robberies, looting, war crimes, etc.) [38-41].

That is, alcohol addiction is a disease due to the occurrence of psychological, neurological, and physical dependence on the psychoactive substance alcohol. Against the background of alcohol addiction, offenses and crimes can be committed, forensic, forensic and psychiatric, physical and chemical, forensic and pharmaceutical and other expert studies are carried out. Alcohol has a negative impact on the metabolic processes in the human body, and the toxins that accumulate over time increase the risk of developing psychosis. Cognitive impairment in progressive alcohol dependence manifests itself in the form of dementia and comorbid diseases [42–47].

The cost of conducting a course of pharmacotherapy in the treatment of drunken forms of alcohol addiction may become inaccessible to the patient or his relatives.

**The purpose of the research.** Within the framework of multidisciplinary organizational and legal, forensic and pharmaceutical and medical and immunological researches in the organization and management of pharmaceutical competencies during the circulation of medicines to conduct a comparative analysis of the cost of pharmacotherapy in the relief of alcoholism to determine the most cost-effective treatment regimen.

**Materials and methods.** The study was conducted in the period of 2021-2022. Experimental clinical-pharmacological and medical-immunological studies were conducted on the basis of the Medical Center of LLC "Avicenna" under the guidance of Associate Professor Chuiev Yu.F. Organizational and legal, forensic and pharmaceutical research conducted at the Department of Medical and Pharmaceutical Law, General and Clinical Pharmacy of the Kharkiv Medical Academy of Postgraduate Education under the guidance of Professor Shapovalova V.O. dependencies. Two modern schemes of pharmacotherapy at relief of drunken forms of alcohol dependence were developed. During the circulation of medicines, eleven medicines were selected for the main group and ten medicines for the control group. The instructions for medical use of medicines were studied, which allowed to continue the analysis of the international non-proprietary names (INN) of the necessary drugs. More than thirty legal documents on pharmacotherapy in the relief of alcoholism were processed. Methods of organizational and legal, normative, documentary, retrospective, clinical and pharmacological, pharmacoeconomic, comparative, systemic, economic and graphic analysis were used.

The research of the article is a fragment of researches works of Kharkiv Medical Academy of Postgraduate Education on "Improving the organizational and legal procedure for providing patients with drugs from the standpoint of forensic pharmacy, organization and management of pharmacy" (state registration number 0116U003137, terms 2016-2020) and "Pharmaceutical and medical law: integrated approaches to the system of drug circulation from the standpoint of forensic pharmacy and organization of pharmaceutical business" (state registration number D/21U000031, terms 2021-2026) and Bogomolets National Medical University on "Integrated scientific and practical approaches to improving the functioning of the pharmaceutical market and pharmaceutical care in Ukraine" (state registration number 0122U000488, terms 2022-2027).

**Results and discussion.** The pathophysiology of alcohol dependence includes the use of pure ethanol in patients of at least 80 g/day for several days. Manifestations of withdrawal symptoms occur after taking ethanol at a dose of more than 180 g/day for one or more weeks. Symptoms appear within 1-6 days (usually 3-4 days) [48-51].

For the purpose of a comparative study, twenty patients with similar clinical and dynamic characteristics of alcohol dependence were included in the control group. All men between the ages of 30 and 52. The mean duration of alcohol dependence was 10.5 years  $\pm$  3.68. The mean age was 43.2 $\pm$ 2.68. In the clinic of withdrawal syndrome in both groups there was a full range of signs of withdrawal disorders of varying severity and compatibility (weakness, brokenness, tremor, headache, low mood, general discomfort, thirst, insomnia, anorexia, irritability, anxiety, nausea, alcohol cravings, bad breath, facial flushing, scleral injection, tachycardia, hypertension, hyperhidrosis, gait instability, incoordination, anxiety, fears, depression, nightmares, epileptiform seizures) [21].

The scheme of basic pharmacotherapy for the relief of intoxicated forms of alcohol dependence in the main group is given in the Table 1.

**Table 1.** Scheme of basic pharmacotherapy for the relief of drunken forms of alcohol dependence in the control group.

No.	Pharmaceutical form	INN	Average daily dose	Dose unit price (UAH)	Treatment course price (UAH)
1.	Sodium chloride solution for inf. 9 mg/ml in 200 ml bottles	Sodium chloride 0,89%	600-800 ml per day	14	168
2.	Cytoflavin concentrate for solution for inf. 10 ml No.10 in amp.	Cytoflavin	10 ml per day	100	300
3.	Hydazepam IC tablets 0.05 g No.10	Hydazepam	0,05 mg 3 times a day	15,48	139,32
4.	Thiamine chloride-Darnitsa (vitamin B1-Darnitsa) solution d/in. 50 mg/ml, 1 ml No. 10 (5x2) in amp.	Thiamine (vit B1)	2 ml 1-2 times a day	7,3	43,8
5.	Pyridoxine-Darnitsa (vitamin B6-Darnitsa)	Pyridoxine (vit B6)	2-4 ml 1-2 times a day	16,4	98,4

	solution d/in. 50 mg/ml, 1 ml No. 10 (5x2) in amp.				
6.	Cyanocobalamin-Darnitsa solution d/in. 0.5 mg/ml, 1 ml No. 10 in amp.	Cyanocobalamin (vit B12)	1-2 ml per day	7,96	23,88
7.	Ascorbic acid-Darnitsa solution for injections. 50 mg/ml, 2 ml No. 10 in amp.	Ascorbic acid (vit C) 5%	по 4 ml 2 times a day	6,58	39,48
8.	Riboxin-Darnitsa solution for injection. 20 mg/ml, 10 ml No. 10 in amp.	Inosine	10 ml 2 times a day	4,45	26,7
9.	Magnesium sulfate-Darnitsa solution for injections. 250 mg/ml, 5 ml No. 10 in amp.	Magnesium sulfate	5-10 ml 2 times a day	7,2	43,2
10.	Lasix neo solution d/in. 10 mg/ml, 2 ml No. 10 in amp.	Furosemide	20–40 mg intravenously	31	93
11.	Glutargin tablets 0.75 g No. 30 (10x3)	Arginine glutamate	3 times per day	5,90	53,1

The scheme of basic pharmacotherapy for the relief of drunken forms of alcohol dependence in the control group is shown in the Table 2.

**Table 2.** Scheme of basic pharmacotherapy for the relief of drunken forms of alcohol dependence in the last group.

No.	Pharmaceutical form	INN	Average daily dose	Dose unit price (UAH)	Treatment course price (UAH)
1.	Sodium chloride solution for inf. 9	Sodium chloride 0,89%	600-800 ml per day	14	168

	mg/ml in 200 ml bottles.				
2.	Thiamine chloride-Darnitsa (vitamin B1-Darnitsa) solution d/in. 50 mg/ml, 1 ml No. 10 (5x2) in amp.	Thiamine (vit B1)	2 ml 1-2 times a day	7,3	43,8
3.	Pyridoxine-Darnitsa (vitamin B6-Darnitsa) solution d/in. 50 mg/ml, 1 ml No. 10 (5x2) in amp.	Pyridoxine (vit B6)	2-4 ml 1-2 times a day	16,4	98,4
4.	Cyanocobalamin-Darnitsa solution d/in. 0.5 mg/ml, 1 ml No. 10 in amp.	Cyanocobalamin (vit B12)	1-2 ml per day	7,96	23,88
5.	Ascorbic acid-Darnitsa solution for injections. 50 mg/ml, 2 ml No. 10 in amp.	Ascorbic acid (vit C) 5%	4 ml 2 times a day	6,58	39,48
6.	Riboxin-Darnitsa solution for injection. 20 mg/ml, 10 ml No. 10 in amp.	Inosine	10 ml 2 times a day	4,45	26,7
7.	Magnesium sulfate-Darnitsa solution for injections. 250 mg/ml, 5 ml No. 10 in amp.	Magnesium sulfate	5-10 ml 2 times a day	7,2	43,2
8.	Lasix neo solution d/in. 10 mg/ml, 2 ml No. 10 in amp.	Furosemide	20-40 ml intravenously	31	93
9.	Phenazepam IC tablets 0.001 g No.50 (10x5)	Phenazepam	3 times a day	11,43	34,29
10.	Glutargin tablets 0.75 g No. 30 (10x3)	Arginine glutamate	3 times a day	5,90	53,1

The price of the course of treatment was calculated according to the following formula [52]:

$PR \times DD \times 3$ , where:

PR – the unit price of the dose,

DD – average daily dose,

3 – three days (average course of treatment).

When comparing the price of a course of pharmacotherapy for the relief of drunken forms of alcohol dependence, it was determined that the scheme for the main group costs 1028.88 UAH, and the scheme for the control group costs 623.85 UAH, i.e., 40% cheaper.

It has previously been found that the developed innovative standard of emergency pharmacotherapy accelerates the regression of such manifestations of alcohol withdrawal syndrome as arterial hypertension, tachycardia, nausea, vomiting, tremor, sweating, heaviness in the head and headache. At the same time, the integral indicator of the severity of the withdrawal syndrome is significantly reduced. The proposed therapeutic module contributes to the reduction of pathological craving for psychoactive substances due to a significant decrease in the intensity of its vegetative component. Complex pharmacotherapy is not accompanied by adverse events, which allows us to consider it not only an effective, but also a safe means of complex detoxification of patients dependent on alcohol [21, 44].

Multidisciplinary organizational and legal, forensic and pharmaceutical and medical researches have proven the affordability of basic pharmacotherapy in the relief of alcoholism.

**Conclusions.** Multidisciplinary organizational and legal, forensic and pharmaceutical, medical and immunological researches in the organization and management of pharmaceutical competencies during the circulation of medicines has been conducted. A comparative analysis of the cost of basic pharmacotherapy in the relief of alcoholic dependence to determine the most cost-effective treatment regimen. Found that the cost of the basic pharmacotherapy scheme for the experimental group of patients is 40% cheaper than the basic pharmacotherapy scheme for the control group. It is established that the scheme of the course of pharmacotherapy in the relief of alcoholic addictions for the research group is more effective, safer, economical and has fewer side effects on the patient's body.

**Ethical approval.** Ethical clearance was obtained from the administration of “Avicenna” Medical Center and Kharkiv Medical Academy of Postgraduate Education. A permission statement for conducting the experiments was received from the administration of “Avicenna” Medical Center. Before any data collection, the main purpose of the study was clearly explained to each department (concerned personnel).

**Conflict of interests.** The authors declare that they have no conflict of interests or/and competing interests.

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