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THE PROBLEM OF SUICIDAL BEHAVIOR AND ALCOHOL DEPENDENCE SYNDROME IN THE ARCTIC ZONE OF THE REPUBLIC OF SAKHA (YAKUTIA)

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An analysis of data on suicides in the Arctic zone of the Republic of Sakha (Yakutia) from 2000 to 2021 is presented, as well as their relationship with the prevalence of alcoholism and mental disorders. Official data show that during this period, 8,160 people, mostly men of working age, committed suicide in Yakutia. The overall suicide rate in the region has decreased, but is still significantly higher than the Russian average. Alcohol abuse is considered a leading cause of suicide, especially among indigenous people. There is a direct correlation between the prevalence of alcohol dependence and suicide, as well as the incidence of alcoholism and mental disorders. However, the connection between these indicators and mortality from suicide in the Arctic zone has not been established. The problem is caused, among other things, by insufficient diagnosis of mental and addictive disorders due to a shortage of qualified doctors in the region. The authors of the article come to the conclusion that it is necessary to strengthen the prevention of alcoholism and suicidal behavior, as well as to improve the quality and availability of psychiatric care in the Arctic zone.

Keywords: suicide, alcohol addiction, alcohol, Arctic zone, Yakutia.

Introduction. Over the past two decades, both in the world and in Russia, there has been a significant decrease in the number of suicides. Thus, from 2000 to 2022, the average Russian mortality rate from this cause decreased by 3.5 times, i.e. with 38.8 people up to 11 people per 100 thousand of us. However, it must be taken into account that the Russian Federation is the only country in which regional suicide mortality rates for various reasons can differ dozens of times. Thus, according to Rosstat data from 2019, the top five most prosperous regions in this regard (Ingushetia, Chechnya, Sakhalin and Astrakhan regions, Khabarovsk Territory) have an indicator per 100 thousand of us. was

0.2-1.1 people, then in the last five this value varied from 28.8 to 35.6 people. In addition, it is known that men are 5-6 times more likely to commit suicide, and the frequency of suicides in rural areas is 2 times higher than in cities [1]. Thus, the national averages do not entirely objectively reflect the real situation with suicides.

In Yakutia, the mortality rate from suicide has long been significantly higher than the Russian average. Back in the late 1920s, this fact was noted in his study by D.T. Shepilov [7], later Corresponding Member of the Russian Academy of Sciences and Minister of Foreign Affairs of the USSR. In addition, according to a number of modern scientists, clustering of suicides is observed in plac-

es where small peoples live [5, 8, 10]. It is important to point out that even within a region, the frequency of suicides is quite variable. A particularly acute situation was noted in some Arctic uluses [2].

Purpose: to analyze data on suicides in the Arctic zone of Yakutia (AZ RS(Ya)) and determine current trends in suicidal behavior in dynamics, taking into account the general incidence of alcohol dependence syndrome (ADS) and alcoholic psychoses (AP) (2000-2021).

Materials and methods: We analyzed the materials of the organizational and methodological departments of the State Budgetary Institution of the Republic of Sakha (Yakutia) of the Yakut psychoneurological dispensary and the Yakut narcological dispensary, as well

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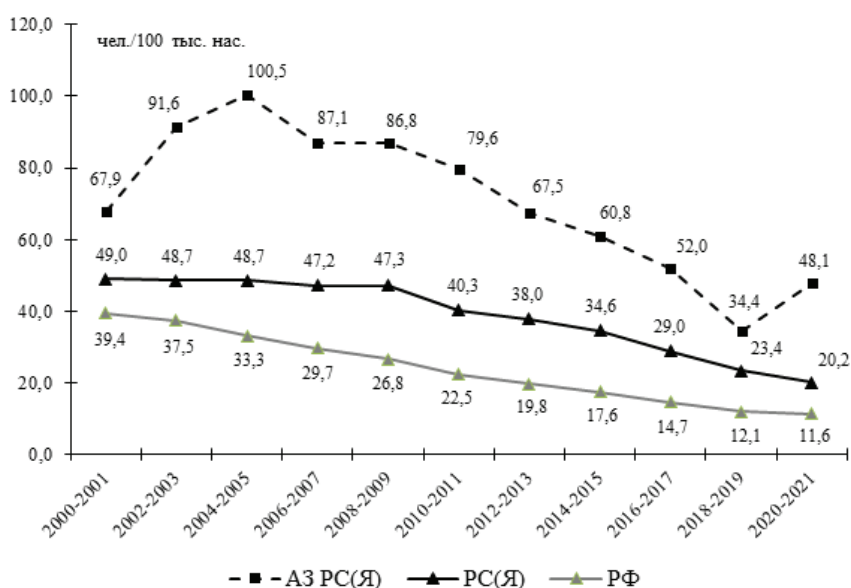


Fig. 1. Suicide mortality in Yakutia and Russia

Table 1

Absolute number of suicide victims in the territory of the AZ RS(Y), 2019-2021

Улусы	Годы									in just 3 years, people
	2019			2020			2021			
	absolute quantity		per 100 thousand of us.	absolute quantity		per 100 thousand of us.	absolute quantity		per 100 thousand of us.	
	men	women		men	women		men	women		
Abyisky.	0	0	-	0	0	-	1	1	51,5	2
Allaikhovsky	0	1	37,0	1	1	73,8	1	0	37,2	4
Anabar	1	1	55,2	4	0	109,2	3	0	82,2	9
Bulunsky	0	0	-	4	1	58,8	2	1	35,2	8
Verkhnekolymsky	0	0	-	0	0	-	0	0	-	0
Verkhoyansky	5	0	45,1	4	3	63,5	3	0	27,4	15
Zhigansky	3	0	72,4	2	0	48,2	0	1	24,0	6
Momsky	0	0	-	1	0	24,9	1	0	24,9	2
Nizhnekolymsky	0	0	-	3	0	70,7	3	0	71,6	6
Oleneksky	0	0	-	2	0	46,7	2	0	46,2	4
Srednekolymsky	5	3	108,4	5	1	81,9	4	1	69,1	19
Ust-Yansky	2	0	42,7	1	1	28,5	0	0	-	4
Ev.-Bytantaysky	2	1	105,8	1	1	69,9	1	2	103,8	8
Total for the Arctic	18	6	35,5	28	8	53,2	21	6	42,2	87
Total by RS(Ya)	185	37	22,9	165	35	20,5	171	24	19,8	617
As a % of the total number of deaths in Yakutia	9,7	16,2	-	17,0	22,9	-	12,3	25,0	-	14,1

as data from the territorial body of the Federal State Statistics Service for the Republic of Sakha (Yakutia) on the morbidity and mortality of the population in the 13 uluses that are part of AZ RS(Y) - Abyisky, Allaikovsky, Anabarsky, Bulunsky, Verkhnekolymsky, Verkhoyansky, Zhigansky, Momsky, Nizhnekolymsky, Oleneksky, Srednekolymsky, Ust-Yansky, Eveno-Bytantaysky from 2000 to 2021. The level of suicides is indicated according to the WHO gradation: low (up to 10 people/100 thousand people), medium (10-20 people), high (≥ 20) levels. Accumulation, adjustment, systematization of initial information and visualization of the results obtained were carried out in Microsoft Office Excel spreadsheets. Statistical analysis was carried out using IBM SPSS Statistics v.26.

Research results. According to official data, from 2000 to 2021. in Yakutia, 8160 people committed suicide, of which the vast majority (>85%) were people of working age, predominantly men (ratio 6:1).

But, as in the Russian Federation as a whole, a gradual decrease in the frequency of its indicator is observed in the region. If in 2000-2010 There were an average of 453.4 suicides per year, then in 2011-2021. this figure decreased by 1.6 times (288.5 cases). However, Fig. 1 clearly illustrates that in the AZ RS (Y) the frequency of suicides has always significantly exceeded the data for the Russian

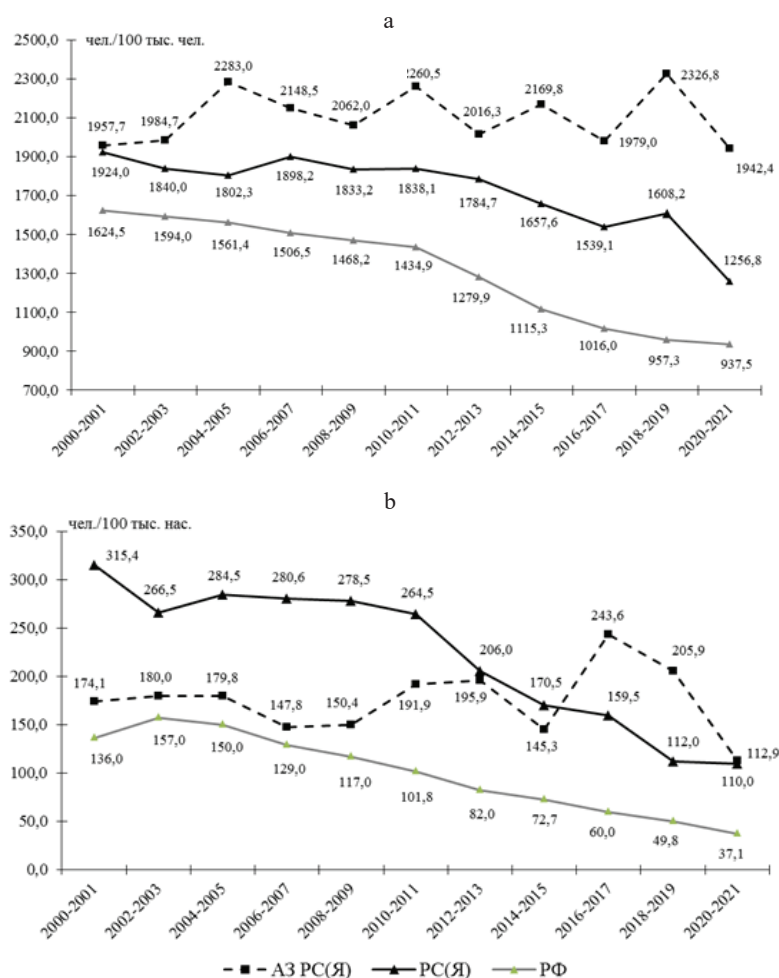


Fig. 2. Prevalence (a) and primary incidence (b) SAS (including AP) in Yakutia and Russia

Table 2

Results of correlation analysis of suicides in AZ of RS(Ya) with prevalence and incidence rates of mental disorders and alcoholism in RS(Ya) and RF

Indicator	Psychiatric disorders					
	Prevalence			Primary morbidity		
	AZ RS(YA)	RS(YA)	RF	AZ RS(YA)	RS(YA)	RF
Correlation coefficient	0.251	0.783**	0.610**	0.150	0.609**	0.781**
The value of p	0.260	0.000	0.003	0.506	0.003	0.000
	Alcohol dependence syndrome, including alcoholic psychosis					
	Prevalence			Primary morbidity		
	AZ RS(YA)	RS(YA)	RF	AZ RS(YA)	RS(YA)	RF
Correlation coefficient	0.125	0.663**	0.770**	-0.075	0.741**	0.850**
The value of p	0.580	0.001	0.000	0.740	0.000	0.000

Note: statistically significant results ($p < 0.01$) are highlighted in bold.

Federation (in 2000-2010 - by 2.8 times, 2011-2021 - by 3.5 times) and Yakutia (by 1.8 times over the entire period of research). At the same time, it is necessary to take into account the fact that due to the sparse population of the Arctic regions, even isolated cases of suicide can lead to sharp fluctuations in the indicators under consideration.

In absolute terms, over the last 3 accounting years (2019-2021), 87 suicides were recorded in the AZ RS (Yakutia) (Table 1). Their maximum number was noted in the Srednekolymsky (19 people), Verkhoyansk (15 people), Anabarsky (9 people) uluses. The absence of suicide cases in the Verkhnekolymsky ulus is most likely explained by the insignificant number of representatives of the local population - according to VPN-2010, 1950 Sakha, Yukaghirs, Evens, Evenks and Dolgans lived in the area.

The number of male suicides in the AZ RS(Y) exceeded the number of female suicides by 5.4 times. Of the total number of suicides committed in Yakutia, AZ RS(Y) accounts for 14.1%. For comparison, in the overall structure of regional mortality, the share of Arctic regions averages 8.8%.

According to the literature, most suicides in the Russian Federation are associated with alcohol consumption [6, 9]. For example, every fourth suicide in the Trans-Baikal Territory suffered from alcohol dependence syndrome [4]. By the way, the Trans-Baikal Territory is one of the subjects of the Russian Federation with high rates of suicide mortality. It is evident that alcohol abuse also significantly increases mortality from other external causes such as homicide, accidental alcohol poisoning, etc., especially in indigenous populations [3].

Unfortunately, the prevalence of SAZ and AP in Yakutia still remains extremely high - in 2000-2010 it exceeded Russian indicators by 20.6%, and in 2011-2021. this difference increased by 46.5%, that is, 1589 versus 1092 cases per 100 thousand of us. The situation in AD RS(Y) is even more acute: over two decades, there was no obvious decrease in overall morbidity, and in different years this figure varied from 1942.4 to 2326.8 cases/100 thousand population (fig. 2).

We have established a pronounced direct correlation between the prevalence of alcohol dependence and suicides (for the RF $p < 0.001$, $rx = 0.976$, strong correlation; for RS(Ya) $p = p < 0.001$, $rx = 0.958$, strong correlation), as well as the incidence of alcoholism and suicides (for the RF $p < 0.001$, $rx = 0.969$, strong correlation; for RS(Ya) $p = p < 0.001$,

$rx = 0.814$, strong correlation). However, we did not find any visible correlation between the above indicators and suicide mortality in AZ RS(Ya) ($p = 0.58$ and 0.74 , respectively).

A similar pattern has been established between suicide rates and primary morbidity of mental disorders: for the RF $p < 0.001$, $rx = 0.918$, strong correlation; for the RS(Ya) $p = p < 0.001$, $rx = 0.771$, strong correlation; for the Arctic zone no such correlation was also revealed ($p = 0.506$).

Interestingly, there was a clear direct quantitative correlation between suicides in the Arctic zone and the prevalence and incidence of alcoholism and mental illness in the RF and RS(Ya), which is not observed when comparing with similar indicators in the AZ of RS(Ya) (Table 2).

The most likely reason for the above is the shortage of staff in the Arctic zone of narcologists. This explains the relatively low data on the primary morbidity of ASP (including AS) in the northern regions compared to regional indicators. For the same reason, in remote areas of Yakutia there is no proper diagnosis of mental illnesses, which led to the fact that the official data on the primary morbidity of mental disorders in the AS of RS(Ya) are 3.7 times lower than the average Russian figures. It should be noted that as of October 2023, vacant positions of district psychiatrists are not occupied in 9 uluses of RS(Ya), including two Arctic uluses - Anabar and Moma. Out of 137 staff units of psychiatrists in the Yakutsk Republican Psychoneurological Dispensary providing mental health care in the Republic of

Sakha (Yakutia) as of October 2023, only 77 units are filled.

Conclusions. The data analysis showed that the suicide rate in the Arctic zone of RS(Ya) was characterized as high, and exceeded the average Russian indicators in 2.8-3.3 times, regional - 1.8 times. One of the most significant reasons for this is not only the wide spread of depressive and anxiety disorders in the population of the North, but also the high incidence of alcohol dependence syndrome.

Prevention of alcoholism as a direct trigger of suicidal behavior in Arctic indigenous populations is an important area of suicide prevention.

In addition, it is necessary to improve the quality and accessibility of psychiatric, psychotherapeutic and narcological assistance to the population of the Arctic uluses, to strengthen the prevention of suicidal behavior and alcoholism among the inhabitants of the North.

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SCIENTIFIC REVIEWS AND LECTURES

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GLYCOCALYX DISORDERS IN CRITICAL CONDITIONS: PATHOPHYSIOLOGICAL AND CLINICAL ASPECTS

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Aim: to evaluate the results of clinical studies devoted to the study of the role of endothelial glycocalyx (GC) in the pathogenesis of critical conditions.

Materials and Methods. Scientific information was searched in domestic (E-Library) and foreign databases (PubMed, Scopus, Oxford University Press, Springer, Web of Science Core Collection). 120 publications were analysed, 42 of them were selected to meet the requirements of the review.

Results. GC is a gel-like polysaccharide-protein layer covering the surface of vascular endothelial cells. GC maintains homeostasis of the vascular network, including controlling vascular permeability and microvascular tone, preventing microvascular thrombosis, and regulating leukocyte adhesion. Endothelial GC damage is a universal link of pathogenesis in various pathological processes. The proposed review considers the structure and functions of GC, its participation in the pathogenesis of such diseases as diabetes mellitus, sepsis, covid-19, polytrauma, pre-eclampsia, epilepsy and others. A decrease in GC thickness in patients with diabetes mellitus has been described. The effect of hyperglycaemia on GC structure has also been noted. In sepsis, GC is damaged by free oxygen radicals, which are released by circulating leukocytes, which in turn triggers a cascade of reactions that lead to systemic oedema, hypovolaemia with further development of organ and tissue damage. In severe trauma, damage to GC is noted, which is accompanied by the release of syndecan, heparan sulfate, hyaluronic acid into the bloodstream. Preeclampsia is also associated with GC damage, which can be detected by elevation of specific markers. Epilepsy and many other neurological diseases are associated with disruption of the blood-brain barrier, whose dysfunction is associated with GC dysfunction.

Conclusion. Timely diagnosis of GC degradation can improve life prognosis and therapeutic outcomes in critically ill patients.

Keywords: glycocalyx, sepsis, pre-eclampsia, polytrauma, status epilepticus, coronavirus infection, syndecan, hyaluronic acid.

Introduction. At the present stage of medicine, the earliest possible diagnosis of glycocalyx (GC) dysfunction in critical conditions is extremely important, since its structure disorder is a predictor in the development of many pathological processes and their complications [1]. This issue is especially acute in the practice of intensive care physicians, since timely diagnosis of GC disorders can improve the

prognosis of the course of the disease and increase the chances of survival [2]. GC damage and development of endothelial dysfunction are a component in the pathogenesis of many diseases, such as diabetes mellitus (DM), cardiovascular diseases, strokes, epilepsy, which are widespread in the clinic of critical conditions [31]. Modern methods of GC dysfunction assessment, which are the most