

which in turn is one of the reasons for more difficult social adaptation of this group of patients. In the group of patients with paranoid schizophrenia with cerebral and hemodynamic disorders, there is a clear violation of the sequence of decision-making, which leads to disorganization of the adopted strategic line for solving the problem.

Conclusions

During the examination it was determined that the intellectual-mnemonic abilities of patients with paranoid schizophrenia with concomitant viral hepatitis are characterized by inertia with signs of

exhaustion, a weakening of voluntary attention, a decrease in the level of generalization and distraction, abstract thinking. It was found that in most patient's neurocognitive impairment was present before the development of productive symptoms of schizophrenia and persisted during periods of remission of positive symptoms. Significant ($p < 0.01$) differences between the 1st and 2nd group of patients; the indicators of attention, spatial orientation, motor coordination, long-term memory, verbal associative productivity, logical thinking, and violations in the lexical system also differed significantly ($p < 0.05$).

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BRAIN STROKES IN ECOLOGICALLY UNFAVORABLE AREAS OF THE ARAL SEA REGION

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Resume

Brain strokes in the Aral Sea region are characterized by a predominance of patients of working age (average age 57 years) and the main cause of all forms of cerebral strokes is hypertension (58%).Relatively high proportion of hemorrhagic strokes (4: 1). The most unfavorable months in Urgench for patients with cerebrovascular diseases are: January, February, March, May and December, and the critical days are days with III-IV types of weather with spastic and hypoxic effects of the atmosphere.

Key words: *cerebral strokes, ischemic and hemorrhagic strokes, risk factors, hypertension, atherosclerosis, weather and climatic factors.*

МОЗГОВЫЕ ИНСУЛЬТЫ В ЭКОЛОГИЧЕСКИ НЕБЛАГОПРИЯТНЫХ ЗОНАХ ПРИАРАЛЬЯ

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Резюме

Мозговые инсульты в регионе Приаралья характеризуются преобладанием больных трудоспособного возраста (средний возраст 57 лет) и основными причинами всех форм мозговых инсультов является гипертоническая болезнь (58%). Относительно высокой удельной вес геморрагических инсультов (4:1). Наиболее неблагоприятными месяцами в Ургенче для больных с цереброваскулярными заболеваниями являются: январь, февраль, март, май и декабрь, а критическими днями являются дни с III-IV типами погоды со спастическим и гипоксическим эффектами атмосферы.

Ключевые слова: *мозговые инсульты, ишемические и геморрагические инсульты, факторы риска, гипертоническая болезнь, атеросклероз, погодно-климатические факторы.*

ЭКОЛОГИК НОҚУЛАЙ ШАРОИТЛИ ОРОЛБЎЙИ ХУДУДИДА МИЯ ИНСУЛЬТЛАРИ

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Резюме,

Оролбўйи худудида мия инсультларининг аксарияти меҳнатга лаёқатли ёшидаги беморларда (ўртача 57 ёш) билан характерланади ва мия инсультли ҳамма турларининг асосий сабаби гипертония касаллиги ҳисобланади (58%). Геморрагик инсультларнинг юқори солиштирма нисбати (4:1). Цереброваскуляр касаллиги бор беморлар учун Урганчда январь, февраль, март, май ва декабрь ойлари ноқулай ойлар бўлиб, III-IV типдаги спастик ва гипоксик таъсирли иқлим кунлари айниқса оғир ҳисобланади.

Калит сўзлар: *мия инсультлари, ишемик ва геморрагик инсультлар, хавф омиллари, гипертония касаллиги, атеросклероз, об-ҳаво, иқлим омиллари.*

Relevance

For the organization of effective prevention and successful control of cerebrovascular diseases, it is of great importance to study their prevalence, frequency, mortality, risk factors, which are currently described by over 30. The most common of them are: hypertension, atherosclerosis, age, and blood coagulation disorders, hereditary burden, diseases of the heart and blood vessels, diabetes mellitus, etc [1, 2, 8, 10].

In recent years, environmental factors have become increasingly important. It has been established that climatic conditions play a significant role in the occurrence, course, and outcomes of cerebral strokes [3, 7, 8, 10, 11, 12, 15, 16]. It was noted that the influence of meteorological factors on the body is strictly specific for each region, since each of them differs in its climatic and geographical features [7, 8, 10, 11, 15, 16].

In recent years, the environmental situation in the Aral Sea region has deteriorated significantly. Drying of the Aral Sea led to an increase in the mineralization of drinking water, a change in the climate of the region - it became drier, dust storms became more frequent. All this led to an increase in the overall incidence in this region [4, 5, 9, 13].

The Aral Sea problem is not only national, but also global. "The Aral Sea crisis is one of the largest environmental and humanitarian disasters in the history of mankind," writes I. A. Karimov, "under its influence there were about 35 million people living in the sea basin" [6].

In the Aral Sea region, the quality of water and land resources has been completely lost, the composition and stability of ecosystems have been violated, and environmental toxicity has increased. About 300 days a year sand salt storms walk around

the region. From the dried bottom, 75 million tons of sand and dust rise annually into the atmosphere. About 39 million tons of salts are blown out from the entire drained bottom of the sea each year. The upcoming new Aralkum desert has already absorbed two million hectares of arable land, led to the degradation of pastures, tugai forests, and other vegetation. Satellite images show that the "mud" shelves filled with dust and salt of the Aral Sea penetrate 800-1000 kilometers into the depths of densely populated oases. There is evidence that they also settle on glaciers where the main rivers of Central Asia originate [4, 5].

Since 1970, in the Aral Sea region, morbidity and mortality among the population have sharply increased. Incidence has an alarming upward trend. At the epicenter of an environmental disaster, anemia, thyroid dysfunction, and kidney and liver disease are common. Blood diseases, cancers, asthma and heart failure progress. Medical studies confirm that the development of these diseases is directly dependent on environmental disaster. During the clinical examination of the adult population, deviations in health status were found in 64-73%, in children - in 66-70%. The incidence of paratyphoid exceeded the indicators of Uzbekistan by 2 times, hepatitis - 3 times, typhoid - 4.5 times. The incidence of cancer exceeded that of the former Union by 7 times, especially among young people (over the past 5 years it has increased by 2 times). High levels of anemia among pregnant women (70-80%). Over the past 10 years, the number of patients with kidney stones, in the gall bladder has increased 7 times, acute intestinal diseases - 3 times, kidney diseases - 8.6 times, tuberculosis - 2 times. Maternal and child mortality has increased. In the period 1985-1994 in the Khorezm region, the incidence rate of cholelithiasis increased 4.7 times, urolithiasis - 1.9 times, anemia - 1.8 times [4, 5]. A direct correlation was established (correlation coefficients ranged from +0.64 to +0.98) between the indicators of the total mineralization of drinking water and the values of its hardness, on the one hand, and the intensive indicators of the incidence of cholelithiasis and urolithiasis [13].

It was proved that a stroke is easier to prevent than to restore the functions lost to the patient, and even more so the patient will be completely cured. In preparing for preventive work, several tasks need to be addressed. It is important to have sufficient information about the extent of the problem - the frequency of occurrence of new cases and the prevalence of CEH, as well as trends in these indicators. These data are necessary to assess the amount of work ahead, and later, when

conducting a repeated epidemiological study, they can evaluate its effectiveness.

Meanwhile, it is well known that in the aggregate of factors affecting the frequency of cerebral strokes, a certain role is played by climatic and geographical factors. They, unlike other risk factors, affect equally all subjects, regardless of age, gender, social status, initial individual psychobiological characteristics of the body. The reaction of the body in response to changes in climatic and weather conditions depends on adaptive capabilities and is realized through the autonomic nervous system. Therefore, in recent years more and more importance has been attached to environmental factors. It has been established that climatic conditions play a significant role in the occurrence, course, and outcomes of cerebral strokes. It was noted that the influence of meteorological factors on the body is strictly specific for each region, since each of them differs in its climatic and geographical features [1, 6, 7, 9, 10, 11, 14, 15, 16].

Research objective: to study the structure of morbidity and the impact of a set of weather and climate factors on the course and outcome of cerebral strokes in ecologically unfavorable areas of the Aral Sea region.

Material and methods

To solve this problem, we analyzed 427 patients with cerebral strokes who were hospitalized in the Khorezm branch of the Republican Scientific Center for Emergency Medical Aid in 2012. Of these, 236 (55.2%) were men, 191 were women (44, 8%). The average age of the patients was 57.3 years (56.7 for men and 58.2 for women).

Information on weather factors for the city of Urgench for 2012 was obtained from a weather station in the city of Urgench. It is known that in natural conditions, not individual weather factors, but the whole complex of climatic and weather factors wobble on the body. Therefore, to study the influence of climate and weather factors, the morphodynamic weather classifications of I.I. Grigoriev et al. [3]. All varieties of weather conditions by the sum and dynamics of baric circulation, electro-meteorological and heliogeophysical indicators are classified in four medical types of weather: of which types I and II in meteoropathological terms relate to favorable weather types, and III and IV types to unfavorable.

In studying the influence of various atmospheric effects, the classification of V. F. Ovcharova was used [12].

On the basis of long-term researches of V.F.Ovcharova taking into account character of change and a combination of meteorological factors, and also atmospheric circulations, the following meteorological effects of atmosphere are developed:

- antihypertensive - with the destruction of the anticyclone, the approximation of the thermal atmospheric front;
- hypoxic - when establishing an area of low atmospheric pressure in the zone of a warm atmospheric front (cyclone, hollow);
- tonic - when approaching a cold atmospheric front;
- spastic - when establishing an area of high atmospheric pressure in the zone of high atmospheric front (ridge, spur);
- a combination of several effects with a combination of warm and cold atmospheric fronts.

Results and discussion

The study showed that the cause of acute cerebrovascular accident in 58% of cases was hypertension, in 15.2% - atherosclerosis of the cerebral vessels, in 15.8% - a combination of cerebral arteriosclerosis with hypertension, in 11% - rheumavascularitis, cerebral aneurysm brain,

diabetes, etc. Analysis of cases of cerebral strokes depending on the nature of cerebrovascular accident showed that 346 (81%) patients had cerebral infarction, and 68 (16%) subarachnoid hemorrhages occurred in 13 (3%) patients with cerebral hemorrhage. The greatest number of patients was between 60 and 74 years old (43.4%) and from 45 to 59 years (40%), patients with working age (from 20 to 59 years) accounted for 52.6% (Table 1).

An analysis carried out depending on the age and cause of the disease showed that hypertension was more often observed in patients aged 45 to 59 years (54.0%) and prevailed at working age (20 to 59 years) - 68.3%. Atherosclerosis and its combination with hypertension were mainly observed in the age group of 60 to 74 years (82.0% and 80.3, respectively) and the number of patients with them prevailed in age groups over 60 years (respectively: 90.6% and 94.5%) In men, cerebral strokes are more often observed at the age of 45 to 59 years (43.5%), and at working age (up to 59 years) amounted to 55.9%. In women, the majority of patients were between the ages of 60 and 74 years (46.8%), and the prevailing number of patients older than 60 years of age was 52.6%.

Table 1

The distribution of patients with MI in the city of Urgench according to age, depending from the cause of the disease

Causes diseases	Age in years								Total	
	to 44 years		from 45 to 59 years		from 60 to 74 years		from 75 to 90 years		Abs. count	%
	Abs. count	%	Abs.count	%	Abs. ount	%	Abs. cont	%		
GB	36	14,7	132	53,7	77	31,6	-	-	245	57,3
AZ	-	-	7	10,3	54	82,0	5	7,7	66	15,4
GB in combinati on with AZ	-	-	3	5,0	56	80,3	10	14,7	69	16,2
Other	18	39,3	29	60,7	-	-	-	-	47	11,1
Total	54	12,7	171	39,9	187	43,8	15	3,6	427	100

Note: GB - hypertension, AZ - atherosclerosis

Further study showed that hypertension was the cause of brain hemorrhage in 72.3% of cases, subarachnoid hemorrhage of the brain in 64.7%, and cerebral infarction in 55.3%. Atherosclerosis of cerebral vessels mainly caused cerebral infarction in 18.6%, its combination with hypertension was observed with subarachnoid hemorrhage in 23.5%, cerebral hemorrhage in 19.2%, and in cerebral infarction - 14.8%.

Cerebral infarction was more often observed in the age groups from 45 to 59 years and from 60 to 74 years (41.5% and 41.5%, respectively) and the number of cases prevailed in patients under the age

of 59 years (54.4%). Hemorrhage in the brain and subarachnoid space was more often observed between the ages of 60 and 74 years (51.1% and 58.8%, respectively) and the number of patients prevailed over the age of 60 years (53.2% and 58.8%, respectively).

Based on the variability of the main meteorological factors (air temperature, atmospheric pressure, wind speed, relative humidity), we determined the types of weather and atmospheric effects. We found that in 2012, Urgench recorded 172 days with unfavorable weather types (III-IV).

A study of the occurrence of cerebral strokes depending on the types of weather revealed that the incidence was significantly (0.05) higher on days with III-IY types of weather (1.4) (Table 2.). To determine the frequency of occurrence of adverse days by type of weather, monthly and seasonal, we conducted their monthly analysis. Moreover, it was established that the greatest number of adverse days was in January - 17, February - 21, March - 23, May - 16 and December - 19.

As noted above (Table 2), 65% (278) of cases of cerebral stroke occurred on days with adverse types (III and IY types) of weather. When distributing the number of cases of cerebral stroke by months, depending on the date of their development, it was found that the highest incidence rate is observed in January 14.5%, February - 10%, March - 11.0%, May - 11% and December - 9%, and the lowest rates in June - 3% and November - 4.6%.

Table 2.

The average daily incidence of cerebral strokes, depending on the type of weather

Days	Weather types	
	I-II	III-IY
The number of cases of cerebral strokes	119	240
Number of days from different types of weather	203	172
Daily average	0,6+0,02	1,4+0,03
P1:2	<0,05	

In accordance with the task, we compared the indicators of the monthly distribution of the number of cases of cerebral stroke with indicators of adverse days (days with III and IY types of weather). At the same time, it was found that the dynamics of the number of cases of cerebral stroke by month almost coincides with the dynamics of the number of days with III and IY types of weather. For example: an increase in the number of cases of stroke in January (14.5%), February (10%), March (11.0%), May (11%) and December (9%) correspond to an increase in the number of days with type III and IY weather during these months (respectively in January - 17, February - 21, March - 23, May - 16 and December - 19).

It should be noted that a slight increase in the incidence in July and August is possibly associated with the hypoxic effect of the atmosphere. As is known, the occurrence of thermal depression is characteristic of the Khorezm region in the summer. Such a synoptic state is characterized by a combination of very high temperature (up to 30°C and higher in the morning and up to 40-45°C in the afternoon), extremely low humidity and low atmospheric pressure, which cause hyperthermic and hypobaric hypoxia.

For example : from 07/18/2012 to 07/19/2012 in the city of Urgench, the air temperature was + 39-41°C, relative humidity 40-43% and atmospheric pressure 746 m bar. During these 2 days, 3 cases of cerebral stroke were noted.

Further analysis of 172 unfavorable days (III-IY types), depending on the nature of the change in meteorological factors and their combination,

showed that 11 (6.4%) days had a hypotensive effect of the atmosphere, 84 (48.7%) were hypoxic, 69 (40.3%) - spastic and 8 (4.6%) - tonic.

Analysis of the incidence of cerebral strokes depending on the effects of the atmosphere showed that the average daily incidence rates of cerebral strokes are significantly higher with spastic (1.47) and hypoxic (1.42) effects of the atmosphere. At the same time, the lowest rates were noted with a tonic (0.9) atmosphere effect.

When studying the effect of atmospheric effects on the incidence of cerebral strokes depending on their causes, it was found that cerebral strokes, both with hypertension and cerebral arteriosclerosis, often occurred with spastic and hypoxic effects of the atmosphere.

Based on the literature [3, 12] and the results of our research, the following development paths for meteotropic reactions can be presented. The first of them is that adverse weather changes cause a complex of specific and nonspecific shifts in the body of people who do not suffer from any acute or chronic diseases. In this case, meteorological factors act as the main cause of suffering, and we can talk about a meteotropic disease or a meteotropic reaction. The second way is that, under the influence of weather changes, disease symptoms or pathological processes that already exist in patients intensify or manifest (manifestation of pathological processes). The third way is physiological adaptation to unusual climatic factors, that is, a process associated with the development of a new stereotype of internal reactions.

Conclusions

1. Brain strokes in the Aral Sea region are characterized by a predominance of patients of working age and the main cause of all forms of cerebral strokes is hypertension.

2. Of all forms of strokes, ischemic predominates and it is more often observed at working age, and hemorrhagic - after 60 years.

3. An increase in the number of cerebral strokes and the occurrence of meteorological reactions on days with III-IY types of weather are the result of the influence not of individual factors, but of the whole complex of weather and climatic conditions on the body.

4. The most unfavorable months in Urgench for patients with cerebrovascular diseases are: January, February, March, May and December, and the critical days are days with III-IY types of weather with spastic and hypoxic effects of the atmosphere.

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