$PM_{2,5}$ тұрақты бақылау жүргізу). Щаң бөлшектерімен (фракция PM_{10} и $PM_{2,5}$) атмосфералық ауаның ластануы туралы алынған деректерге гигиеналық баға беру жергілікті жерге шаңның таралу уақыты мен орнын есепке ала отырып мониторинг жүргізуді оңтайландыру керек екенін айқын көрсетті.

Түйінді сөздер: шаң фракциялары, атмосфералық ауа, ластаушы заттар, гигиеналық баға беру, мониторинг

Summary

Atmospheric air in industrial cities is today the leading factor associated with the greatest part of all health risks. For correct assessment of losses from this factor it is necessary a radical change in the system of monitoring of air pollution, bringing it to international claims (continuous control particulate TSP PM_{10} и $PM_{2,5}$). Hygienic evaluation of the obtained data on air pollution dust particles(fractions PM_{10} and $PM_{2,5}$), indicates that optimization of the monitoring taking into account the spatial and temporal distribution of dust on the ground; the chemical composition of dust; when the dust concentration with the emission sources.

Key words: fractions of dust, air, contaminants, health assessment, monitoring

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EPIDEMIOLOGICAL ANALYSIS OF MORBIDITY PREVALENCE OF POPULATION ARAL SEA REGION

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The structure and prevalence of morbidity among the adult population living in environmentally disadvantaged areas of the region. Studies carried out on human settlements (the city of Shalkar and Irgiz, Aktobe region, Arys South Kazakhstan region, Ulytau village of Karaganda region), located in the Aral sea region. The leading pathology was presented presumably ecologically-dependent diseases of different classes. Retrospective analyzed indicators was 10 years, during the period from 2004 to 2013.

Key words: environment, population health, leading to pathology

In the modern world the humanity is facing an unprecedented scale and destructiveness of the environmental problems that threaten the very existence of all life

on the planet. It is no coincidence that environmental problems and climate change are included in the agenda of various influential international and regional organizations, institutions, forums and summits. One of the largest in the recent history of global environmental disasters experienced by countries and 60 million people of Central Asia is the Aral sea tragedy. More recently, in 1961, the Aral sea has arisen in Turanian lowland 35 thousand years ago, exceeded 66 thousand sq. km. It is considered one of the largest lakes in the world. In the eyes of just one generation off the face of the Earth disappeared half of sea Tragedy the Aral sea according to their ecological-climatic, socio-economic and humanitarian consequences is a direct threat to sustainable development, health, gene pool and the future of people living in it [1,2]. Permanent attention to these issues is reflected in a series of Decrees of the President of Kazakhstan, decrees of the ROK Government, the development of targeted State programs for the improvement of the environment and the health of the population [3, 4].

In recent years, scientific research great attention is paid to the analysis of indicators of the impact of environmental factors on health of different population groups [5].

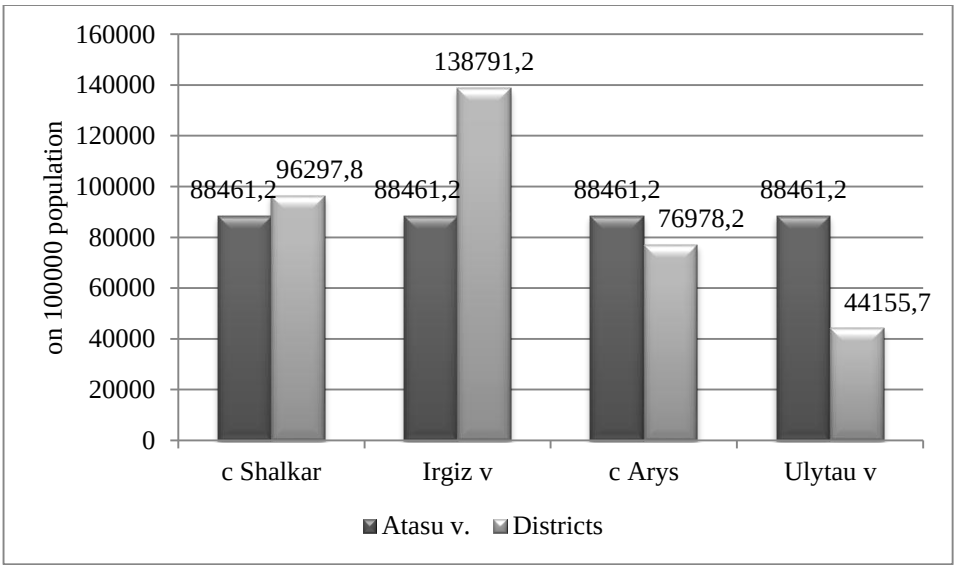
However, to date there is no scientifically based framework for the comprehensive assessment of the risk of General morbidity of the population, the nature of the development of birth defects and disability of the population, especially in terms of comprehensive, combined and combined effects of various factors of the Aral sea region on the human body [6,7]. The disaster has caused significant damage to the population of Aral sea. Insufficiently justified the measures on the protection of the health of the population at the individual and population level, the principles of improving the organization of safe sanitary-epidemiological conditions of the population.

The purpose of the study: the study of morbidity prevalence of adult population living in the Aral sea.

Materials and methods. Source of information about the health status of the population data was obtained from the Republic center for e-health (RCEH). Analysis of the distribution of the total incidence of individual classes carried out according to ICD-10. As a study was the adult population living in the city of Shalkar and Irgiz, Aktobe region, Arys South Kazakhstan region, Ulytauv. of Karaganda region, located in the Aral sea region, for 17 classes of diseases (ICD-10), for the period 2004-2013 Item compare selectedAtasu v. Statistical processing of the obtained results was carried out using software statistical program Statistica-10. We calculated the average arithmetic (M), standard error (m) and confidence interval (95%.DI).

The results of the study and their discussion. Analysis of the mean annual prevalence of morbidity of adult population showed that in the locality comparison (Atasu v.), the overall incidence was at 88461,2±6473,0. In Irgiz v. the overall

incidence of disease was higher than in Atasu v.1.6 times (t= -5,5 and p<0.001). Among the adult population of Ulytau v. this figure was below 2 times (t=6.1 and p<0.001) in relation to point of comparison. Mean annual prevalence of morbidity of adults of the studied localities is presented on picture 1.



Picture 1 - The prevalence of General morbidity among the adult population of the Aral sea region

On separate classes of diseases in Shalkar the prevalence of diseases among the adult population significantly exceeded that of the item of comparison (Atasu v.). So, according to the classes of infectious and parasitic diseases was exceeded by 2.8 times (t= forecast to be minus 4.6 and p<0.001), respiratory diseases 2.8 times (t= -9,4, p<0.001), diseases of blood and blood-forming organs and the immune system in 2.7 times (t= -9,5 and p<0.001), digestive apparatus diseases - by 1,9 times (t=-8,5, p<0.001), diseases of the skin and subcutaneous tissue 1.7 times (t= -4,5, p<0.001).

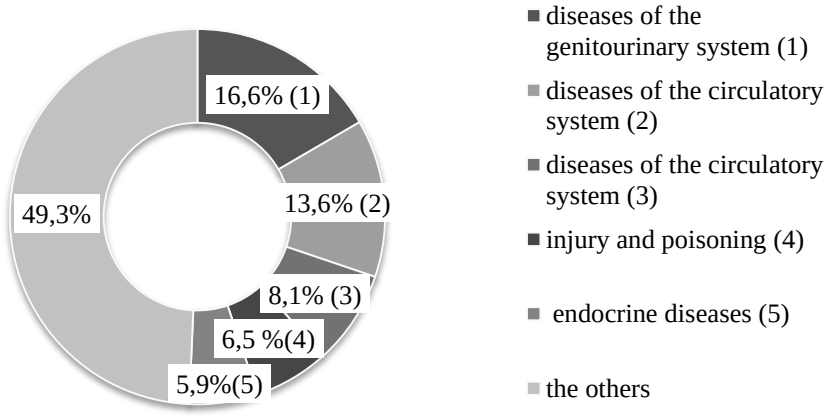
In Irgiz v. among the adult population has increased the prevalence of diseases of the eye and its appendages 2.8 times (t= to 4.3 and p<0.001), diseases of blood and blood-forming organs and the immune system in 2.8 times (t= is 10.8 and p<0.001), diseases of the skin and subcutaneous tissue 2.8 times (t= -9,5 and p<0.001), congenital anomalies and chromosomal syndromes 2.3 times(t= -3,4 and p< 0,003), mental disorders and behavior disorders 2 times(t= -4,5, p<0.001), respiratory diseases 2.1% (t= -3,6 and p<0,002), infectious and parasitic diseases 2 times (t= -2,6, p<0,019), digestive system 1.8 times (t= -6,1, p<0.001), diseases of the genitourinary system in 1.7 times (t= -2,6, p<0,016) in relation to point of comparison.

The mean annual prevalence of adult population morbidity Arys exceeded the levels of control classes skin and subcutaneous tissue 2.8 times (t= -4,2, p<0.001), diseases of blood and blood-forming organs and the immune system 2 times (t= drop 2.8 and p<0,011), congenital anomalies and chromosomal syndromes in 1.9 times (t= -2,2, p<0,039), digestive system 1.6 times (t= drop 2.8 and p<0,012).

The prevalence of General morbidity of adult population of Ulytau v. was 50% lower than in Atasu v. The mean annual prevalence by grade of morbidity among the adult population was not exceeded in relation to the point of comparison was much lower. Almost all of the studied classes of ICD-10 rates were 50-70% below target.

Based on the analysis of the structure of classes of diseases according to ICD-10 were ranked classes. Among the 17 classes of diseases leading pathology of the adult population living in Atasu v., was 50.7%.

Picture 2 reflects the proportion of the leading pathology, which includes diseases of the genitourinary system (16,6%), diseases of the circulatory system (13.6%), diseases of the respiratory system (8.1 %), injury and poisoning (6.5%), endocrine diseases, nutritional and metabolic disorders (5.9 %).



Picture 2 - The ratio of the leading classes of diseases the adult population of Atasu v.(%)

Each of the other classes of diseases contributed to the incidence of less than 5%, totalling 49.3 %.

The ranking of classes of diseases among adult population residing in the studied areas of the Aral sea region showed that indicators of leading pathology among the study area mostly exceeds the data by area comparison. The results of the ranking of the

average annual indicators of the prevalence of morbidity of adult population living in the Aral sea region, are presented in table 1.

Table 1 - Ranking of mean annual illnesses in the adult population of the Aral sea region

№	Classofdiseases	Atasu v.	Shalkar c.	Irgis v.	Arys c.	Ulytau v.
I	Infectionsandparasiticdiseases	14	9	15	12	15
II	Tumors	12	15	16	14	14
III	Diseases of the blood and blood-forming organs and immune system	8	2	4	4	9
IIV	Endocrine disease, nutritional and metabolic	5	11	13	8	4
V	Mental disorders and behavioural disorders	11	13	8	13	2
VI	Diseases of the nervous system	11	6	11	9	8
VII	Diseases of the eye and its appendages	10	5	5	7	15
VIII	Diseases of the ear and mastoid process	6	8	14	11	13
IX	Diseases of the circulatory system	2	4	3	3	3
X	Diseases of the respiratory system	3	1	2	2	5
XI	Diseases of the digestive system	7	3	6	5	7
XII	Diseases of the skin and subcutaneous tissue	13	7	9	6	12
XIII	Diseases of the musculoskeletal system	11	10	10	10	11
XIV	Diseases of the genitourinary system	1	3	1	1	1
XV	Complications of pregnancy, childbirth and the postpartum period	9	14	7	12	10
XVII	Congenital anomalies and chromosomal abnormalities	15	16	17	15	16
XIX	Injuryandpoisoning	4	12	12	9	6

Among the adult population of p. Shalkar leading pathology amounted to 68.7%. In the first place were diseases of the respiratory system (21,1%), followed by diseases of the blood and blood-forming organs and the immune system (12,6%), third place was

shared by diseases of the digestive system and diseases of the genitourinary system (9.8 per cent). The fourth rank place was taken by diseases of the circulatory system (9.3 percent), fifth - disease of the eye and its appendages (6.1 percent). Other classes of diseasewas 31.3%.

Among the adult population of p. Irgiz the contribution of leading diseases in the prevalence of morbidity was 55.5%. First rank place was taken by diseases of the genitourinary system (17,9%), in second place were diseases of the respiratory system (10.9 per cent), the third - diseases of the circulatory system (10.4 percent). Fourth place was taken by diseases of the blood and blood-forming organs (9.1%), the fifth - diseases of the eye and its appendages (7.2 per cent). Otherclassesofdiseasewas 45.5%.

In Aris city, the adult population often suffered from diseases of the genitourinary system (16%), second rank place was taken by diseases of respiratory system (13.7 %), third - diseases of the circulatory system (13.6 %). In fourth place was diseases of the blood and blood-forming organs (12.1 %), the fifth - diseases of the digestive system (10.7 %). In General, the leading pathology was 66.1% of the total incidence of morbidity. Other classes was 33.9%.

In Ulytauv. among the adult population leading pathology was 60.3%. In the first place were diseases of the genitourinary system (15,1%), in second place was a mental disorder and conduct disorder (13,1%), the third - diseases of the circulatory system (11.1 %). The fourth rank place was taken by endocrine diseases, nutritional and metabolic disorders (10.7%) of fifth diseases of respiratory system (10.3 %).

Conclusions:

1. A study of the prevalence of morbidity among the adult population living in the Aral sea region, it was found that relative to comparison there was a significant excess of the indicators in the following classes of diseases: diseases of the blood and blood-forming organs and immune system, diseases of the respiratory system, infectious and parasitic diseases, diseases of the digestive system.

2. The leading pathology was represented by different classes. Key were diseases of the genitourinary system in all studied areas. Disease of respiratory organs disease of blood and blood-forming organs and immune systems were among the leaders in the city of Shalkar, Arys, v. Irgiz. Class of diseases of the circulatory system was the leader in Arys v., Irgiz v.,Ulytau v. This demonstrates the negative impact of environmental factors associated with living in the Aral sea.

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Тұжырым

Арал өңірі экологиялық қолайсыз аймақтарда ересек тұрғындар арасында аурушандылықтың құрылымы мен таралуы талданды. Зерттеулер Арал аймағында (Ақтөбе облысының Шалқар қ. және Ырғыз кенті, Онтүстік Қазақстан облысының Арыс қ., Қарағанды облысының Ұлытау кенті) орналасқан елді мекендерде өткізілді.Әр түрлі кластың экологиялық тәуелді болжам аурулардың жетекші патологиясы көрсетілді. 2004 жылдан бастап 2013 ж.ж. аралығындағы талданатын ретроспективасы10 жылдықкөрсеткіштерін құрайды,

Түйінді сөздер: қоршаған орта, тұрғындардың денсаулығы, жетекшілік патология

Резюме

Проанализирована структура и распространенность заболеваемости среди взрослого населения в экологически неблагополучных регионах Приаралья. Исследования проведены по населенным пунктам (г. Шалкар и п. Иргиз Актюбинской области, г.Арысь Южно-Казахстанской области, п.Улытау Карагандинской области), находящихся в зоне Приаралья. Лидирующая патология была представлена предположительно экологозависимыми заболеваниями разных классов. Ретроспектива анализируемых показателей составила 10 лет, за период с 2004 по 2013 г.г..

Ключевые слова: окружающая среда, здоровье населения, лидирующая патология