Main modern aspects of neurobrucellosis according to the materials of the regional infectious clinical hospital of Samarkand city

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Abstract: This article gives detailed information about main modern aspects of neurobrucellosis according to the materials of the regional infectious clinical hospital of Samarkand city.

Keywords: neurobrucellosis, infectious disease, epidemic, population

Relevance. Brucellosis is an infectious disease common to animals and humans, this disease is one of the most dangerous, belongs to the group of zoonoses and plays a huge role in the disability of the population. The epidemic and epizootic situation of this infection in the world continues to be quite tense to this day, due to which brucellosis remains an urgent socio-economic problem not only for Uzbekistan, but also for some countries in Europe, Asia, America and Africa.

In chronic brucellosis, the pathological process has a multi- organ lesion. With brucellosis, the following organs and systems can be affected: musculoskeletal, cardiovascular, nervous, urinary, sexual, endocrine, and disturbances appear in the most important links of homeostasis of the human body - the immune system, hemostasis, rheology, microcirculation, etc.

We have studied the literature data on chronic brucellosis by Russian researchers over the past 20 years. However, we did not come across a mention of neurobrucellosis in a lot.

Neurobrucellosis is a zoonotic infectious disease caused by Gram-negative bacteria of the genus Brucella. Neurobrucellosis is characterized by damage to all parts of the nervous system: central, peripheral and autonomic. Neurobrucellosis becomes an urgent problem due to changes in the clinical picture of modern brucellosis, which is distinguished by the effacement of symptoms. This, in turn, requires the development of modern diagnostic methods, thanks to which this diagnosis will be made in a timely manner, and this, in turn, will allow for adequate therapy, the purpose of which will be to improve the quality of life of patients and thereby prolong their working capacity and vital activity.

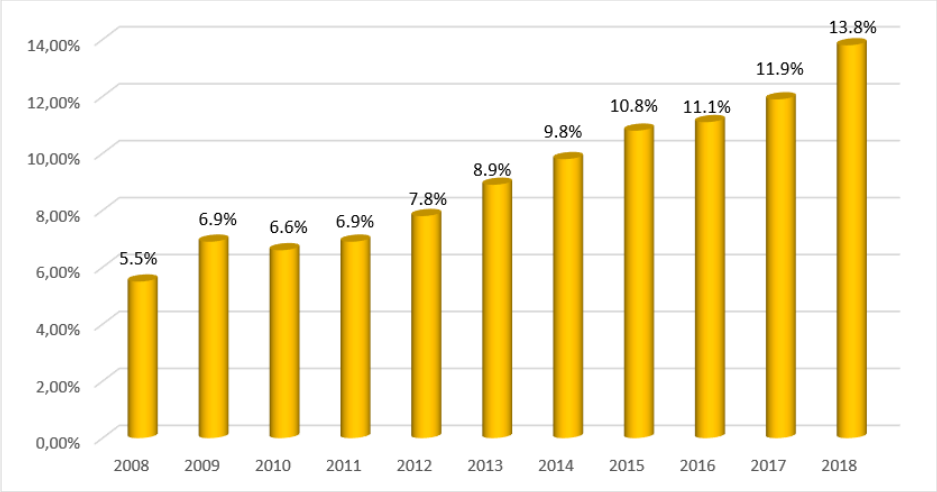
The purpose of the study. To characterize some clinical and epidemiological manifestations of nervous system damage in patients with chronic brucellosis.

Materials and research methods. We conducted a retrospective analysis of the epidemiological situation of brucellosis in the Samarkand region based on the study of statistical data on the official registration of the incidence of brucellosis in the city of Samarkand for the period 2008-2018. Of the hospitalized patients with a diagnosis of chronic brucellosis, in the Regional Infectious Diseases Hospital for the period from January 2008 to February 2018, 54 patients with lesions of the nervous system were selected. In making the diagnosis of brucellosis, the clinical classification according to K. Jalilov (1987) was used. To verify brucellosis, Wright's reactions were used (a titer of 1:150 was taken into account as positive) and Heddelson's (a positive and sharply positive result). Clinical examination of patients included a thorough collection of anamnesis, including epidemiological.

The examination included a complete blood count with leukoformula, bacteriological blood culture, if necessary, a CT scan and consultation with a neuropathologist.

Research results. When studying the long-term dynamics (from 2008 to 2018) of the incidence of patients, the highest levels of incidence were identified, which were noted in Nurabad, Kushrabad and Bulungur regions. A comparative analysis of the incidence of brucellosis in the examined patients showed a clear upward trend in the incidence in such districts as Nurabad, Kushrabad, Bulungur, Urgut and Pastdargom.

When studying the absolute incidence rates in the Samarkand region for the entire time period, it was revealed that the peak incidence occurred in 2018, where it corresponded to 13.8% of the case, while the lowest incidence rate of 5.5% was noted in 2008. Thus Thus, it was found that since 2009 there was a slight increase in the incidence of brucellosis (in 2009 - 6.9%), then some decline in rates to 6.6% of the case (2010) and after a significant rise to 13, 8 cases in 2018 (Figure 1).



Rice. 1. Dynamics of the incidence of brucellosis in the Samarkand region for the period from 2008 to 2018

Among the routes of infection, the contact route dominated (48.2%), the alimentary route of infection was 33.7%, in 18.1% of patients the route of infection was not established.

It is noted that the rise in the incidence of brucellosis begins in May, and a decrease in the incidence is observed from July, which, in all likelihood, was associated with the biological cycles of animals (calving, calving) and some agricultural work.

The age characteristics of patients with the chronic form of brucellosis is shown in Figure 2. Analysis of the age structure of patients showed the predominant treatment of people of working age: up to 14 years old - 4%, 14-17 years old - 7.7%, 20-25 years old - 17.7%, 25 -35 years old - 21.2%, 35-40 years old - 22.3%, 40-50 years old - 11.3%, over 50 years old - 10.1%.

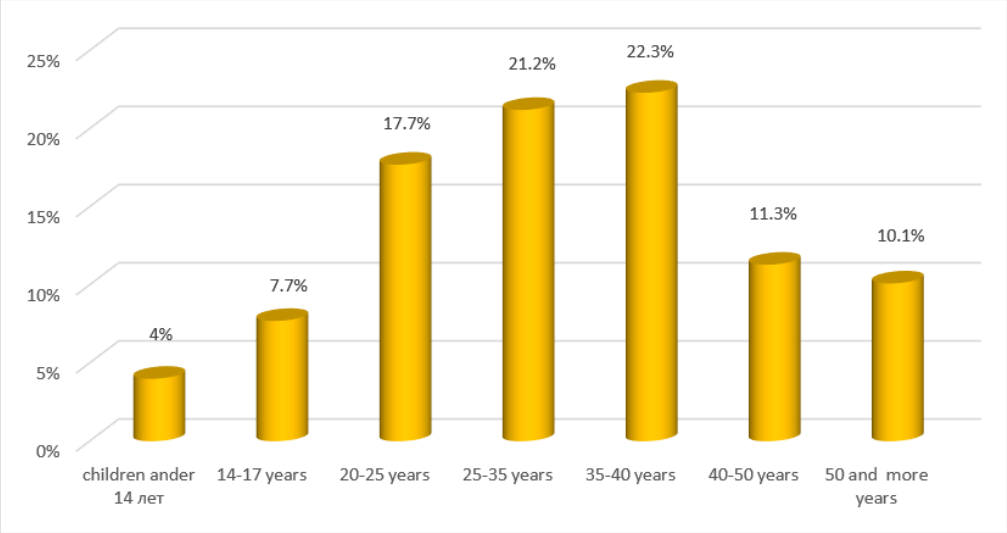


Figure 2. Distribution of patients by age.

Most of the patients were male - 58.3%, the rest were female patients - 41.7% (Fig. 3).

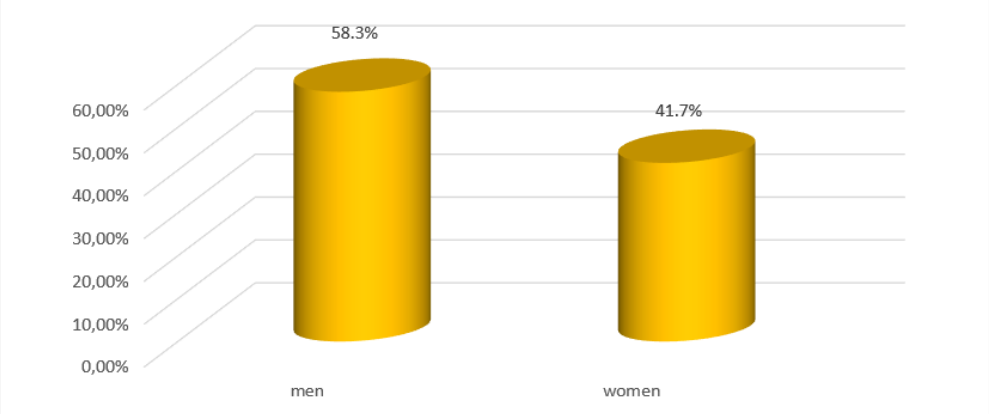


Figure 3. Distribution of patients by sex.

In patients with the chronic form of brucellosis, organ damage was recorded with varying frequency, so changes in the cardiovascular system accounted for 24% of cases; musculoskeletal system in 60.2% of cases, nervous system in 13.2%, urogenital

system in 3.6% of cases. In some cases, combined lesions of organs and systems were noted.

Given the complaints of patients, the clinical manifestations of damage to the nervous system in brucellosis varies significantly from 2% to 95% and can be represented by such syndromes as: CNS damage (meningitis, encephalitis), PNS (neuritis, sciatica), ANS (vegetative-vascular dystonia) and psychobrucellosis (asthenoneurotic syndrome, depressive syndrome, hallucinosis, etc.) (Table 1).

Table 1

Main clinical manifestations in patients with neurobrucellosis.

No.	Clinical sign	Abs.	%
1	Meningitis	2	3.7%
2	Encephalitis	1	1.8%
3	Radiculitis	41	75.9%
4	Polyradiculitis	Eleven	20.3%
5	Neuritis of the facial nerve	23	42.5%
6	Neuritis vestibulocochlear nerve	Nineteen	35%
7	Optic neuritis	7	12.9%
8	Disorder of the autonomic nervous system	51	94.4%
9	Functional disorders of the nervous system	28	51.8%
10	Psychoses	6	11.1%

3.7% of patients suffered from meningitis of brucellosis etiology. Clinically, brucellosis meningitis was manifested by neck stiffness, Kernig 's and Brudzinsky 's symptoms, pain points on the face, head and neck, mainly along the vessels, sometimes cranial nerves were affected. In the cerebrospinal fluid, the examination revealed: pleocytosis, an increase in protein, xanthochromia, the content of sugar and chlorides often decreased, and the content of potassium, calcium and inorganic phosphorus increased.

Early and late forms of brucellosis encephalitis are characterized by mandatory involvement of the meninges, as well as damage to the cranial nerves. With this form of the disease, auditory, facial and optic nerves often suffer, and concomitant lesions of the oculomotor, abducens, trigeminal, vagus, and hypoglossal nerves are also described in the literature. All forms of brucellosis lesions of the central nervous system are accompanied by various clinical manifestations, which confirms the presence of a diffuse pathological process. Meningo-encephalitis was clinically manifested by paresis of the extremities of the spastic type and disturbances in the sensitivity of the conduction character. Meningoencephalitis was detected in 1.8% of patients.

The clinical picture of brucellosis sciatica was detected in 75.9% of patients and was manifested by acute and clearly not localized pain in the lumbosacral region, which lasted for several hours, days or weeks. Basically, the pain begins slowly, gradually increasing, and reaches a peak. Very often there is a so-called vegetative allergic syndrome, with pain points. This syndrome is characterized by not sharp sensitivity disorders and diffuse pains, however, they have a high intensity, but do not lend

themselves to precise localization. The patient tries to feel for the sore spot himself, but he does not succeed well, and therefore the patients declare that "the whole limb hurts." The volatility of pain is also characteristic.

Polyradiculitis was observed in 20.3% of patients, was not always symmetrical and did not always cover all limbs. Polyradiculitis was preceded by rich vegetative symptoms: cyanosis, coldness, severe sweating of the distal parts of the arms and legs, sometimes swelling, arthropathy, which can be combined with lesions of the spine, joints of the extremities, etc.

Clinical symptoms of neuritis of the facial nerve in all examined patients were characterized by the presence of smoothing of the nasolabial fold on the side of the inflammatory nerve, drooping of the eyelid and corner of the mouth, a slight burning sensation, tingling, facial muscle weakness, taste disturbance, increased salivation. This symptom occurred in 42.5 % of patients.

Neuritis of the vestibulocochlear nerve is often found (35%) in patients with neurobrucellosis and was characterized by hearing loss, usually bilateral. Hearing loss was often the only clinical manifestation of chronic brucellosis after acute brucellosis. According to various literature, some patients with chronic brucellosis had hearing loss. And this suggests that neuritis of the vestibulocochlear nerve is one of the important diagnostic signs of chronic brucellosis.

In general, lesions of the optic nerve were manifested by loss of vision (partial or complete), or the sudden onset of blurred or “foggy” vision, in addition, patients experienced pain in the affected eye. In addition to these complaints, patients with optic neuritis may experience a partial loss of color vision in the affected eye (colors appear washed out compared to the other eye). Mostly only one eye is affected, and patients must not be aware of the loss of color vision until a doctor examines them. According to the results of the literature data that characterized the optic neuritis of brucellosis etiology, it was proved that 92% of patients feel pain in the eye of a different nature, which appears before visual loss of vision in the affected eye in 39.5%.

Optic neuritis most often affects young people aged 18 to 45 years, on average 30-35 years old, mostly women and was recorded in 12.9% of patients.

Disturbances of the autonomic nervous system were observed in almost all patients with brucellosis (94.4%) and were manifested by severe sweating or dry skin, peeling, atrophy, acrocyanosis, hair loss, brittle nails, drop in blood pressure, weight loss, emaciation, osteoporosis, muscle fibrosis and decrease in their elasticity.

With brucellosis, functional disorders of the nervous system are observed quite often and were detected in 51.8% of patients. Functional disorders of the nervous system occurred mainly in the initial stages of the disease and proceeded in the form of emotional instability, irritability, distraction, anorexia, insomnia with headaches, asthenia, lethargy, memory loss, apathy.

In brucellosis, psychosis has been described by many researchers. Mental disorders can occur in different phases of the disease. In this group of patients studied, psychosis manifested itself in the form of visual and auditory hallucinations, delirium, euphoria, psychomotor agitation and was detected in 11.1% of patients.

Research results and discussion:

1. The epidemic situation in the Samarkand region, given the presence of epizootic foci of bovine brucellosis and MPC, is unstable. Characteristically, there is an alternation of periods of rising incidence with a peak in 2009 and a decrease to a minimum in 2010. Since 2011, a gradual increase in the incidence of brucellosis in people has been observed in the region, which continues to the present.

2. Damage to the nervous system can manifest itself at different stages of the disease and be the first clinical manifestations of brucellosis. The clinical picture of brucellosis is characterized by polymorphism of symptoms and a relapsing course. Mostly people associated with animal husbandry, as well as those who consumed unpasteurized milk, get sick, so you need to be more careful about patients with neurological manifestations who live or come from an endemic area for brucellosis, so as not to miss the diagnosis: neurobrucellosis. Considering the variety of clinical forms, mechanisms underlying certain manifestations of neurobrucellosis, when drawing up a treatment plan for a patient, it is necessary to take into account the form of the disease, the stage of the process, the totality and nature of focal lesions, the presence of concomitant pathology, an allergic history, the patient's age - that is, therapy should be strictly differential, which improves the quality of life of the patient.

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