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CLINICAL, EPIDEMIOLOGICAL, AND LABORATORY CHARACTERISTICS OF ACUTE BRUCELLOSIS IN THE REPUBLIC OF UZBEKISTAN (ON THE EXAMPLE OF THE KASHKADARYA REGION)

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Abstract
Brucellosis is one of the most widespread zoonotic infections in the world with a high percentage of chronic forms, which accordingly negatively affects the economic component of the healthcare systems of countries with a high prevalence of brucellosis. The aim of our study was to determine the clinical, epidemiological, and laboratory characteristics of the course of acute brucellosis in the Republic of Uzbekistan, in particular in the Kashkadarya region. We examined 178 patients with clinical manifestations of acute brucellosis who sought medical care in regional medical institutions of the Kashkadarya region and republican clinics. Specific research methods were conducted by the ELISA method with the determination of IgM and IgG. Statistical processing of the research results was carried out using the programs "SPSS 20.0", "STATISTICA 6.0". Among patients with brucellosis, men predominate (75.00%), living in rural areas, which is due to the characteristics of the region associated with animal husbandry. It was established that acute brucellosis was 7.5 times more common among women aged 40 to 49 years ($p<0.05$), while in the group under 19 years of age, no cases of brucellosis among women were registered. The dominant routes of infection were contact (45.00% of patients with acute brucellosis), associated with the care of farm animals, and alimentary (32.5% of individuals), due to the consumption of insufficiently heat-treated dairy products. Among the studied group of patients with acute brucellosis, the most frequent clinical symptoms were fever — in 86.67% of individuals, general weakness — 87.50%, sweating — 70.00%, as well as arthralgia — 64.17%, while patients least often indicated myalgia and weight loss — 25.83% of individuals. We established that sacroiliitis and peripheral arthritis were 15.8 and 12 times more common among women than among men, respectively ($p<0.05$). The main changes in the general blood count and biochemical analysis are anemia (53.33%), increased ESR (72.50%), and increased ALT and AST (35.83% and 40.00%, respectively).

Keywords: Acute brucellosis, transmission routes, hepatosplenomegaly, sacroiliitis.

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Introduction

Brucellosis is one of the most widespread zoonotic infections in the world with a high percentage of chronic forms, which accordingly negatively affects the economic component of the healthcare systems of countries with a high prevalence of brucellosis. Some of the highest rates of brucellosis incidence are observed in the countries of Central Asia and Eastern Europe. According to various data, from several hundred thousand to several million new cases of brucellosis are registered annually in the world. An important social aspect of brucellosis is the high proportion among those infected of children and adolescents, young people of working age, as well as the involvement in the epidemic process of people not professionally associated with the source of possible infection. This disease proceeds with damage to all organs and systems, which leads to the development of extremely unfavorable consequences: loss of work capacity and disability of patients, which determines its high socio-economic significance. The results of laboratory studies vary in different populations and studies. Thus, hematological abnormalities, such as anemia and leukopenia, are more common in Mediterranean populations, while thrombocytopenia is relatively rare. In the conditions of the Republic of Uzbekistan, in particular the Kashkadarya region, given the development of animal husbandry and close contact of the population with agricultural animals, brucellosis remains an urgent medical and social problem. Therefore, the aim of our study was to determine the clinical-epidemiological and laboratory features of the course of acute brucellosis in the Republic of Uzbekistan, in particular in the Kashkadarya region.

Materials and Methods

We examined 178 patients with clinical manifestations of acute brucellosis who sought medical care at regional medical institutions of the Kashkadarya region and republican clinics. All patients provided consent to participate in the study and undergo all necessary procedures within its framework. When establishing the diagnosis of "acute brucellosis," it was taken into account that the duration of clinical manifestations did not exceed 3 months from the onset of the first symptoms. The diagnosis was confirmed based on a comprehensive assessment: clinical data, medical history, including epidemiological history, physical examination findings, and laboratory diagnostic results. Complaints were carefully collected from all patients with full detail, along with medical and life history, and epidemiological history data focusing on occupational risks, stay in endemic regions, and consumption of livestock products. A full general clinical examination was conducted according to generally accepted methods, along with a complex of laboratory (general clinical, biochemical, immunological, molecular) and instrumental studies. Specific research methods were performed by the ELISA method on Awareness and Stat Fax 3200 analyzers using NovaLisa Brucella IgG and IgM test systems (Germany) to determine IgM and IgG levels. Out of 178 patients with brucellosis, 120 individuals met the inclusion criteria and formed the main study group. The control group consisted of 30 practically healthy individuals undergoing a routine annual medical examination. The groups were representative in terms of age and sex. The average age of the patients was 35.9±2.8 years. Among the examined individuals, males predominated — 75.00%. Statistical processing of the research results was carried out using the programs "SPSS 20.0" and "STATISTICA 6.0" using parametric and non-parametric methods for evaluating the obtained results. Exclusion criteria from the study: individuals under 18 years of age, confirmation of a diagnosis of subacute or chronic

brucellosis, co-infection with other acute infectious diseases, and the presence of severe chronic concomitant pathology that could significantly affect the reliability of the obtained results.

Results. Discussion

In the analysis of age and sex characteristics, it was established that acute brucellosis occurred 7.5 times more frequently among women aged 40 to 49 years ($p < 0.05$), whereas no cases of brucellosis were registered among women in the under-19 age group. In other age groups, no significant differences were identified between men and women. Among those examined, individuals living in rural areas predominated (71.67%), particularly in territories with a livestock-oriented economy, which is characteristic of the conditions in the Republic of Uzbekistan, specifically the Kashkadarya region. The dominant routes of infection were contact (in 45.00% of patients with acute brucellosis) and alimentary (in 32.5% of individuals). A significant difference was established between the frequency of infection via these routes among men and women: men were 8.7 times more likely to be infected through direct contact with infected animals, while women were 4.8 times more likely to be infected through the consumption of thermally unprocessed livestock products. In the majority of patients, the diagnosis was established within a period of 2 to 4 weeks from the onset of the first clinical signs of the disease. Among the studied group of patients with acute brucellosis, the most frequent clinical symptoms were fever (86.67%), general weakness (87.50%), diaphoresis (70.00%), and arthralgia (64.17%), while myalgia and weight loss were noted least frequently (25.83% of patients). No significant differences in the frequency of various symptoms were established between men and women. Analysis of physical examination data revealed that changes in the cardiovascular system were most common (77.50% of patients), whereas involvement of the reproductive system in the form of orchitis was noted in only 0.83% of cases, which can be explained by age characteristics. Thus, in individuals over 45 years of age, signs of cardiovascular disorders were identified in 91.18% of patients, whereas among those under 45 years, they were found in 72.09%, which constitutes a statistically significant difference ($p < 0.05$). It was established that sacroiliitis and peripheral arthritis were 15.8 and 12 times more common among women than among men, respectively ($p < 0.05$). Additionally, hepatosplenomegaly and lymphadenopathy were identified in patients with brucellosis. Analysis of complete blood count parameters and several biochemical parameters between the main and control groups showed significant differences in mean values of hemoglobin, ESR, lymphocytes, ALT, AST, and LDH. Based on the identified differences, the next stage of the study was the analysis of the frequency of deviations of these indicators from reference values. It was established that anemia (53.33%), elevated ESR (72.50%), and increased ALT and AST (35.83% and 40.00%, respectively) occur significantly more frequently in patients with acute brucellosis. Thus, brucellosis is most prevalent among the rural population living in territories with livestock-oriented economies and is characterized by a polymorphic course, which complicates its early diagnosis. Brucellosis occurs in all age groups; however, in most cases, it affects individuals of young working age, as confirmed by data from several studies. At the same time, some works note a higher prevalence of the disease among older individuals. The gender distribution in our study, with a predominance of men (75.00%), corresponds to the data of most researchers and is likely related to more active involvement of men in working with farm animals and the consumption of raw

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livestock products. Meanwhile, some authors indicate a predominance of women among brucellosis patients.

Conclusion

Based on the conducted study of the clinical-epidemiological and laboratory characteristics of acute brucellosis in the Kashkadarya region of the Republic of Uzbekistan, the following conclusions can be drawn: epidemiological profile: brucellosis remains an urgent medical and social problem in the region, primarily affecting men (75%) and rural residents (71.67%); the main routes of infection are contact (45%) and alimentary (32.5%), with gender differences identified in the transmission mechanism: men are 8.7 times more likely to be infected through direct contact with animals, while women are 4.8 times more likely to be infected through the consumption of untreated dairy products; clinical picture: the disease is characterized by pronounced polymorphism, the most frequent symptoms being general weakness (87.5%), fever (86.67%), diaphoresis (70%), and arthralgia (64.17%), specific gender-related characteristics of musculoskeletal involvement were established: sacroiliitis and peripheral arthritis occur significantly more often in women than in men (15.8 and 12 times respectively); laboratory indicators: acute brucellosis is accompanied by characteristic changes in the hemogram and biochemical profile, in the majority of patients an increase in ESR (72.5%) and the development of anemia (53.33%) are observed, also in a significant portion of patients (35–40%) an increase in ALT and AST levels is recorded, indicating the involvement of the liver in the pathological process; social significance: the high frequency of incidence among individuals of working age and the risk of disability emphasize the need to improve methods of early diagnosis and prevention, especially in livestock-oriented regions.

References

1. Anvarovna Y. N. et al. Clinical and Epidemiological Characteristics of Shigellosis in Adults at the Contemporary Stage //Central Asian Journal of Medical and Natural Science. – 2021. – Т. 2. – №. 3. – С. 311-318.
1. Anvarovna Y. N. et al. Organization of therapeutic and preventive measures to predict the development of secondary immunodeficiency in viral infections in young athletes //Journal of Positive School Psychology. – 2022. – С. 7147-7151.
2. Anvarovna, Y. N., et al. "Organization of therapeutic and preventive measures to predict the development of secondary immunodeficiency in viral infections in young athletes." Journal of Positive School Psychology (2022): 7147-7151.
3. Bakhronov J. J. Kholmurodov Sh. F., Yakhyaeva Kh. D., Kuchkorov Sh. B. The role of artificial intelligence inmodern medicine //Innovations in Technology and Science Education. – 2024. – Т. 2. – №. 7. – С. 464-467.
4. Bakhronov J. J., Otakulov D. A. ugli, & Nigmatullaev, MN (2023) //Gilbert's syndrome: current insights, outcomes and therapies. Golden brain. – Т. 1. – №. 16. – С. 131-135.
5. Jasurovich B. J. et al. HEPATITIS C IN PREGNANT WOMEN AND NEWBORNS //Вестник магистратуры. – 2023. – №. 7 (142). – С. 10-12.

Web of Medicine: Journal of Medicine, Practice and Nursing
webofjournals.com/index.php/5

6. Mirkhamzaevna A. M., Yakubovna E. M., Shakhobidinovna V. N. Safety Assessment of Highly Active Antiretroviral Therapy in Patients with HIV Infection //EUROPEAN JOURNAL OF INNOVATION IN NONFORMAL EDUCATION. – 2022. – Т. 2. – №. 1. – С. 289-292.
7. Munisa E. Polymerase chain reaction in diagnostics of an enteroviral infection at patients with implications of acute intestinal infection //European science review. – 2016. – №. 11-12. – С. 106-107.
8. Namozovich R. R. KhalimovFarzod Zafar ugli, Usmonov İslombek Akbar ugli, &KardzhavovaGulnozaAbilkasimovna.(2024) //An Integrated Approach to the Treatment of Community-Accompany Pneumonia in Children 2ith Myocarditis. EUROPEAN JOURNAL OF MODERN MEDICINE AND PRACTICE. – Т. 4. – №. 2. – С. 84-97.
9. Namozovich R. R. Mansurov JasurChoriyorugli, SobirovOg'abek Sobir ugliugli, &Allanazarov Alisher Boymuratovich.(2024) //Acute Obstructive Bronchitis in Children: Main Etiological and Clinical Features. EUROPEAN JOURNAL OF MODERN MEDICINE AND PRACTICE. – Т. 4. – №. 2. – С. 98-100.
10. Rakhmonov R. N. et al. HEPATITIS C: THE CURRENT STATE OF THE PROBLEM //Web of Medicine: Journal of Medicine, Practice and Nursing. – 2025. – Т. 3. – №. 1. – С. 339-347.
11. Rakhmonov R. N. NEW APPROACHES TO TREATING CHRONIC VIRAL HEPATITIS B //Экономикаисоциум. – 2025. – №. 9-1 (136). – С. 284-286.
12. Rakhmonov R. N., Kh V. D. RECENT DIAGNOSTIC ADVANCEMENTS IN CHRONIC VIRAL HEPATITIS B //Экономикаисоциум. – 2025. – №. 9-1 (136). – С. 281-283.
13. Rukhshonabonu M. et al. CLINICAL MANIFESTATION OF LENNOX-GASTAUT SYNDROME //Вестник магистратуры. – 2023. – №. 7 (142). – С. 19-21.
14. Sobirovna D. N., Zakirovna U. G., Abdujalolovna S. D. Post-covid syndrome in new coronavirus infection. – 2022.
15. Tuychiev L. N. et al. Nasopharyngeal extraction of s. pneumoniae from adult patients with acute respiratory infections and antibiotic resistance of isolated strains //Art of Medicine. International Medical Scientific Journal. – 2022. – Т. 2. – №. 1.
16. Yakubovna E. M. et al. Aspects of Clinical and Laboratory Diagnostics of Enteroviral Infection without CMS Damage //Central Asian Journal of Medical and Natural Science. – 2021. – Т. 2. – №. 6. – С. 1-5.
17. Yarmukhamedova N. A. et al. Clinical and epidemiological aspects of neurobrucellosis according to the data of the regional Infectious clinical hospital of the city of Samarkand //Bulletin of science and education. – 2020. – №. 18-2. – С. 96.
18. Yarmukhamedova N. A. et al. Samark¸and viloyati khududida bolalar va ŭsmirlarda parotitli infektsiya kechishining klinik-epidemiologik khususiyatlari //Problemy biologii i meditsiny. – 2018. – №. 2. – С. 152-154.
19. Yarmukhamedova N. A., Yakubova N. S., Djuraeva K. S. Polyfocalparametersofpatientswithchronicbrucellosis //Журнал Биомедицины и практики. – Т. 6. – №. 6. – С. 296-305.

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