Journal of Biomedical Sciences
Research Article Peer-review, Open Access

Prevalence of Brucellosis among the Population and Improvement of Preventive Measures

Rasulov Sh. M., Djuraeva M. E., Toshpulatov A. Y.

Abstract

The article describes the unique epidemiological features of brucellosis, an epidemiological analysis of the spread of the disease in our republic, Tashkent and the Bukhara region, and preventive measures.

Keyword: brucellosis, epidemiology, prevalence, prevention.

Termez branch of Tashkent Medical Academy

In a number of countries of the world, including our republic, a complex epidemiological situation regarding extremely dangerous infectious diseases remains.These diseases have their own epidemiological characteristics, such as they differ from other infectious diseases by their high transmissibility and many ways of transmission, spread in the form of epidemics and pandemics, the presence of natural foci, the course of the disease in severe clinical forms, and high mortality rates, the biopathogenicity of most pathogens and the possibility of using pathogens as biological weapons, the comprehensiveness and complexity of preventive and anti-epidemic measures against them [1,4,8,10].

After becoming independent, our republic has been establishing political, economic, scientific and cultural relations with more than a hundred countries of the world.

Today, the process of population migration is developing at an unprecedented level. According to the data provided by the World Health Organization (WHO), only in 2018-2019, more than 5 billion passengers around the world used air transport services. Naturally, this situation, in turn, increases the risk of dangerous infectious diseases entering and spreading in the territory of our republic [1,4,7].

The World Health Organization has included brucellosis in the list of highly dangerous infectious diseases that cause great economic and social damage to people.

Brucellosis is common in all regions of the CIS countries, especially in Central Asia, North Caucasus, Transcaucasus and some regions of the Russian Federation. This disease is considered endemic for Uzbekistan, Tajikistan, Kyrgyzstan, and Kazakhstan. In our country, it was observed that the incidence rate is in the range of 0.1-0.5 disease indicators per 100,000 population [1,4].

The incidence rate is not the same in different regions of our republic. In the regions engaged in cattle breeding (Navoi, Bukhara, Kashkadarya, Surkhandarya, etc.), the incidence rate is much higher than in other places.

If we take only the years 2009-2010, the total number of patients was 332 in 2009 and 454 in 2010, of which 2009 was in Tashkent. - 14, 2010. - 39 in Bukhara region in 2009. - 67, 2010. - 103 in Kashkadarya region in 2009. - 83, 2010. - 81 in Jizzakh region in 2009. - 77, 2010. - 82 in Navoi region in 2009. - 16, 2010. - 28 cases of disease were recorded [2,3,8,9].

The reason for such an increase in disease indicators is the activation and change of the epizootic process, as well as the presence of the disease among farm animals, the level of morbidity, the organized system of the farm, the maintenance of the livestock production process, and the quality of sanitary-veterinary measures.

In addition, the level of morbidity of people, groups in certain professions, the volume and quality of the work of organizations engaged in anti-epidemic measures aimed at ensuring the quality and safety of milk and dairy products, meat and meat products also depends on it [2,5,6].

Active working people aged between 18 and 50 are more affected by the disease. But later, the share of children in the weight of patients is increasing.

Brucellosis is a zoonotic, infectious-allergic disease, characterized by fever, damage to the reticulo-endothelial, cardiovascular, nervous, locomotor and urogenital systems.

Brucellosis is an occupational disease (shepherds, butchers, milkmaid, etc.). The main sources of the disease are sheep, goats, cows, pigs. In addition, sources of infection can be horses, deer, camels, mules, dogs and cats. Currently, more than 60 vertebrates have been identified as sensitive to brucellosis.

Thus, we emphasize that the activation of the epidemic process of brucellosis is a process that is integrally dependent on a number of factors, the population's non-compliance with the requirements of personal hygiene standards and the principles of a healthy lifestyle.

This situation determines the need to study this problem in detail using modern epidemiological characteristics of the disease, laboratory diagnostic methods and, based on the obtained data, to develop new scientifically based quality measures to improve the epidemiological control system of this infection.

The purpose of the study: to study the epidemiological characteristics of brucellosis and to improve its epidemiological control by developing effective preventive measures.

Discussion of the results: Epidemiological analysis methods were used to reveal the epidemiological patterns and to understand the features of the epidemic process specific to a particular disease.

In particular, the analysis of the long-term dynamics of the disease provides opportunities to study the trend of the epidemic process, periodicity and irregular (episodic) fluctuations. The analysis of the brucellosis disease registered in the Republic of Uzbekistan during 2011-2021 shows that the total number of registered patients was 7130.

In the first year of the analysis - in 2011, 422 patients with a primary diagnosis of brucellosis (intensive rate per 100 thousand population - 1.5) were recorded, and the highest rate during the analyzed years was 874 patients in 2015 (intensive rate per 100 thousand population - 2, 8) patients are registered (Fig. 3.1).

2018 can be recognized as the beginning of a serious positive turn, when the incidence of brucellosis infection in the Republic of Uzbekistan is in a downward trend.

In 2020, 418 patients were registered across the country (intensive rate - 1.2), the incidence decreased by 2.33 times compared to 2015.

The main reasons why the disease decreased to such a level and increased again in 2021 were observed as a result of the decrease in the population's referrals to hospitals for other diseases during the Covid-19 pandemic and the state of compliance with sanitary and hygiene rules.

Thus, the analysis of brucellosis registered in the Republic of Uzbekistan for 2011-2021 shows that a continuous downward trend is noted in the long-term dynamics of the incidence. During the analyzed years, irregular (episodic) fluctuations of morbidity were not recorded on the republic scale.

When we analyzed the indicators of brucellosis in different regions of the Republic of Uzbekistan in absolute numbers and distribution in relation to 100,000 inhabitants, it was found that it was not evenly distributed in different regions of our Republic.

As it can be seen from the presented data, it was found that the highest incidence rates were recorded in the Jizzakh, Bukhara, and Sirdarya regions of our republic, the lowest in the Navoi, Kashkadarya regions, and the lowest in the Khorezm, Namangan, Andijan, and Fergana regions.

Thus, the retrospective analysis of cases of brucellosis in the administrative regions of the republic in the last 11 years (2011-2021) shows that the regions with a high incidence rate are considered to be the potential presence of an active epizootic center. The result of the above analysis also shows that this infection still occurs in all regions of the republic, and this indicates the need to organize preventive measures that cannot be delayed.

Epidemiological significance of disease spread among population groups is high in prevention of infectious diseases, development of preventive and anti-epidemic measures, i.e. in implementation of actions against the source of the disease, routes of transmission, susceptible community. Therefore, a retrospective analysis was conducted to determine the incidence of brucellosis in children in the Republic of Uzbekistan in 2011-2021.

In the analyzed years 2011-2021, a total of 567 patients were registered among children, which is 7.95% of the total number of 7130 registered patients. The highest rate of brucellosis among children was recorded in 2015-2016. In 2015, the total number of cases was 874, of which 91 were children. In 2016, the total number of cases was 844, and 80 were children.

A decrease in the incidence of brucellosis infection was observed among children in 2020-2021.

The fact that brucellosis is recorded among children indicates that the infection is widespread in the republic. Family members of the patient are at high risk of infection.

In the Republic of Uzbekistan, a retrospective analysis was made in order to determine the level of incidence of brucellosis infection among rural and urban residents in 2011-2021. In the mentioned years, a total of 7130 patients were registered (Table 3.3), of which 6214 (87.15±0.3) cases were rural residents, and 916 (12.8±0.4) cases were registered among urban residents.

As can be clearly seen from the numbers and percentages of cases and their registration among rural and urban residents in the above years, it was found that the majority of brucellosis patients in our republic in all years are found among rural residents.

The difference between the total number of patients in 2011-2021 between rural and urban residents is 87.15% for rural residents and 12.85% for urban residents, this situation justifies the presence of epizootic potential and the need to organize timely and urgent preventive measures among farm animals.

When we analyzed the diseases from 2011 to 2021, the most number of diseases in Tashkent was 20 in 2011, 18 in 2013, and 19 in 2015. In Bukhara region, in 2014 - 106 people, in 2017 - 105 people, and in 2012 - 91 people.

Improvement of preventive and anti-epidemic measures in brucellosis

Medical sanitary culture and standard of living of the population are of great importance in the implementation of preventive measures in order not to be infected with brucellosis.

To achieve this goal, it is necessary to perform the following tasks. Strengthening sanitary-promotional activities among different segments of the population and especially among school-aged children. Involve the general public and neighborhood activists for the continuous implementation of preventive measures.

Strict adherence to personal hygiene measures. Constant improvement of the qualifications of doctors, middle and junior medical staff on zoonotic diseases. Active detection of patients with brucellosis in scheduled public examinations and their complete treatment. Complete identification of patients among population groups that play a key role in the spread of infection.

First of all, it is necessary to eliminate the source of damage. For this, it is necessary to fight against infected animals. This disease leads to the destruction of sheep and goats, in most cases their productivity decreases and their resistance to other diseases decreases.

The intensity of the epizootic process (level of damage to animals, activity, area of spread, duration of existence of an epidemic center, period of latent transmission in animals, etc.) directly affects the level of morbidity of people. In brucellosis, the epidemic process depends on epizootics, that is, if the disease does not occur in animals, it does not occur in humans. In addition, the course of the epidemic process also depends on the type of circulating pathogen.

Epidemiological analysis is carried out in a certain period of time (monthly, semi-annually, annually) in the hearth, and a retrospective epidemiological analysis should be carried out. For this, it is necessary to use all elements of epidemiological analysis: where (place, region), when (month, seasonality), how (epizootic focus, epidemic outbreak, epidemic) and who (patients, sex, age) became infected.

CONCLUSIONS:

In recent years, the incidence rate of brucellosis in our republic has been recorded in a stable state, it was found to be 1.25 per 100,000 population in 2012, and 1.6 in 2021. In the analysis conducted by districts, the highest rate of disease was recorded in Jizzakh, Bukhara, and Sirdarya regions, relatively less in Navoi, Kashkadarya regions, and the lowest incidence was recorded in Khorezm, Namangan, Andijan, and Fergana regions. Children under the age of 14 made up 7.95% of the infected. The results of the analysis of the difference between rural and urban residents of the sick population showed that rural residents accounted for 87.15% and urban residents for 12.85%.

In conclusion, to completely get rid of this disease in all livestock farms on the basis of preventive measures is an urgent issue of national economic importance, which, along with strengthening the livestock economy, is also a struggle for the protection of human health.

LIST OF REFERENCES USED

1. Амиреев С.А., Грушина Т.А., Цирельсон Т.А., Ладный В.И. и др. Применение социально-экологической концепции эпидемического процесса в изучении и борьбе с бруцеллёзом// Эпидемиология инфекционные болезни. 2008.-№1.- С. 35-38.
2. Аракелян П., Бондарева О., Димов С. РИД реакцияси ёрдамида майда шохли ҳайвонлар бруцеллёз касаллиги ўчоқлари активлигини баҳолаш. журнал “Zooveterinariya” 2013. - №5. - С.12.
3. Касымов О.Ш., Имомалиев У.Н. Разработка и внедрение в практику системы эпизоотолого-эпидемиологического надзора за бруцеллёзом// Актуальные проблемы диагностики, лечения и проф.инфекц. и паразитар. заболеваний: Мат. V Междунар. научно-практ. конференции. - Ташкент, 2009. - С. 71.

4. Назаров, А. И. (2022). COVID-19 БИЛАН КАСАЛЛАНГАН БЕМОРЛАРНИНГ БОЛАЛАРНИНГ КЛИНИК ВА ЭПИДЕМИОЛОГИК ХУСУСИЯТЛАРИ. *Scientific progress*, *3*(2), 1026-1031.
5. Лямкин Г.И. и др. Эпидемиологическая ситуация по бруцеллезу в российской федерации в 2012 г. и прогноз на 2013 г. /Г.И. Лямкин, Е.А. Манин, С.И. Головнёва и др. //Проблемы особо опасных инфекций. - 2013. - № 1. – С. 21 – 24.
6. Неъматов А.С. Бруцеллёз у работников предприятий по переработке животного сырья: Автореф. дис. док.мед.наук. - Т., 1994 г.
7. Отамуратова Н.Х. Некоторые аспекты эпидемического процесса при бруцеллёзе у детей: Автореф. дис. кан.мед.наук. - Т., 2011 г.
8. Сафонов, А. Д. Современный взгляд на клинические классификации бруцеллеза / А. Д. Сафонов // Инфекционные болезни. - 2011. - Т. 9, N 2. - С. 106-109
9. Аминжонов, Ш., Аминжонов, М., & Расулов, Ш. (2003). Вакцина для профилактики эхинококкоза животных. *in Library*, *3*(3), 80-80.
10. Шукурова Д.Б., Расулов Ш.М. Бруцеллёз касаллигининг тарқалганлиги ва профилактикасини такомиллаштириш. “Ёш олимлар кунлари” Магистратура талабалари илмий-амалий конференция материаллари. Тошкент 2013.-96-97 с.
11. Шукурова Д.Б., Расулов Ш.М., Файзибоев П.Н. Қора оқсоқ касаллигининг олдини олишда Абу Али ибн Сино маслаҳатлари. “Ибн Сино” таълимоти фан тараққиётида халқаро Ибн Сино ўқишлари. Бухоро 2013. – 99 с.
12. Herrara E., Palomares G., Diar-Aparicio E. milk production increase in a dairy farm under a six-year Brucellosis control progam.// CENID- Microbiology, INIFAP, cuajimalps// J. Infect.Dis. - 2018. - V. 31(5). - P. 511-512.
13. Абдукахарова, М. Ф., Расулов, Ш. М., Пулатов, Ш. К., & Академияси, Т. Т. (2017). Гемоконтакт вирусли инфекциялар эпидемиологияси ва профилактикаси хусусиятлари. *Инфекция, иммунитет и фармакология*, (7), 15.