Epizootical and epidemiological features of brucellosis in Bulgaria

ABSTRACT

The spread of brucellosis in domestic animals and humans was studied during the period 1988 - 2013. The study found that over a fixed period of time the disease in domestic animals was primarily manifested as an epizootic with Brucella which are non-pathogenic or low pathogenic to humans - Brucella ovis, Brucella suis and Brucella canis. During the period June 2006 - December 2008, infection of sheep and goats with Brucella melitensis was found in 16 villages of 4 districts. The infection has probably been imported from Greece in 2005 as a result of unauthorized transportation of goats. During the period 2005-2008 in Bulgaria were found 120 cases of brucellosis in humans in 13 districts of the country. Most of the cases were registered in the Haskovo and Sliven districts. The disease has occurred among workers in animal farms in Greece; however, a connection between the epizootic and the epidemic process has been established in several areas of the country.

Key words: Brucellosis, Bulgaria, epidemiology, epizootology
Smolyan districts showed similar data for the spread of this disease (Arnaudov & Hvojnev, 2000). In approximately 25% of the seropositive rams the disease does not affect the reproductive system and 16.6% of them develop a clinical form (epididimitis). 56.6% of the tested sheep contain antibodies against *Brucella ovis* which indicates the role the sheep play in maintaining this infection. In our studies, antibodies against *Brucella ovis* are found in the blood serum of goats and muflones. The highest percentage of serological reagents is established among goats which have had a miscarriage. They are an epizootic risk to sheep herds when bred together with them (Arnaudov, 2012).

Infections with *Brucella suis* has been established sporadically in various parts of the country (Kostov and Martinov, 2001). On average for the country, 1.92% of the pigs tested were seropositive and the disease is the most widely spread among East Balkan pigs. According to Kostov (1995), the causative agent of the disease in the country - *Brucella suis*, v. Danika, is non-pathogenic for humans.

Brucellosis in dogs caused by *Brucella canis* is established for the first time in the country by Kostov in 1987 (Kostov and Martinov, 2001). The disease is spread mainly in the big cities in domestic and free-ranging dogs (Arnaudov, 1999; Gardevska, 2000; Kostov and Martinov, 2001). There is an epidemic risk of for people in close contact with infected animals.

In 2005, brucellosis caused by *Brucella melitensis* in sheep and goats in Bulgaria was measured (Russo et al., 2009). The disease was found in four districts - Haskovo, Stara Zagora, Yambol and Smolyan, a total of 16 locations. (figure 1). The most affected district was Haskovo - 11 cases in the municipalities Harmanli, Liubimetz and Svilengrad. In an epizootiological study, it was established that the disease was imported together with goats coming from Greece in the suburbs of Harmanli. Infestation of goats was 7 times higher than of sheep (12.2% compared to 1.8%). During the epizootic process seven cattle and one donkey were also infected. Prevalence of brucellosis in the affected areas is a result of unregulated goat trading of infected goats from Harmanli.

As a consequence of the measures taken by the National Veterinary Service under the current EU legislation, the epizootic has been eliminated and since the beginning of 2009, no *Brucella melitensis* positive blood samples from sheep and goats have been found.

**Brucellosis in humans**

Until the epizootic outbreak in 2006, in Bulgaria were registered only isolated cases of the disease in humans and none in animals. A total of 22 cases for the period 1988 - 2002 were identified, with an average incidence of 0.01% (Halova et al., 2012). Since 2007, the incidence among humans increased rapidly to 120 cases, residents of 13 districts (Russo et al., 2009) (figure 2).

Almost half of them are in the Haskovo district (59 cases). The peak of the disease was in 2007, when the incidence reached 0.89% (Halova et al., 2012). 71 of the
infected people (mainly in the Haskovo district) are either owners of goats and sheep, or have consumed unpasteurized dairy products from infected animals. In the remaining 49 cases the infection of people took place outside Bulgaria - mostly in Greece (45 cases) and single cases in Cyprus, Tanzania, Turkey and Italy. From infected people in the National Center of Infectious and Parasitic Diseases were isolated \textit{Brucella melitensis}, biovar 3.

The relationship between the epizootic and epidemic process was measured in the Haskovo, Stara Zagora, Smolyan and Yambol districts. In the remaining areas of the country the infected people have worked in animal farms abroad, particularly in Greece. In only one sheep farm, located in Exohi, Greece, in 2005 were infected 19 people, 14 of which are from the Sliven district.

Conclusion

Connection is established between the epizootic and epidemic process in several areas of the country.

The epidemic outbreak of brucellosis in Bulgaria in 2005 - 2008 is considered a negative effect on the free movement of goods and people between the EU countries. The result is the recurrence of the disease, which has been eliminated from the country a few decades ago.

References


