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Retrospective evaluation of humane brucellosis in the region of Prizren

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ABSTRACT

Prizren and its region for years considered an endemic area for human brucellosis. The first case occurred in 1980 in Dragash, but subsequently occurred in Prizren and Rahovec. The purpose of the research we had a retrospective epidemiological evaluation of disease humane brucellosis in the Prizren region, the incidence and its trend from 2003 to 2012, and comparison with earlier data. In this study we have used data from the registration forms of infectious disease, epidemiological surveys, and monthly and annual reports of the National Public Health Institute in Prizren. The data are processed and analyzed using descriptive epidemiological method. All the data are processed with the software Microsoft excel 2007. In the period 2003-2012 are recorded 215 cases of human brucellosis in the region of Prizren. The municipality with the most recorded cases is Prizren with 43.72%, while with less is Malisheva with only 4.19 % of cases. Year with more cases was 2010th. 140 (65.12%) affected cases were male, and 75 (34.88%) cases were female. The most affected age group was 25-44 years with 67 (31.16%) cases, while the age group 0-4 years has been the least affected with only 4 (1.8%) cases. Incidence per 100000 was 5.82, while at the national level was 3.92/100000 ($p < 0.05$), while the states of the EU / EEA report 0,126 on average ($p < 0.05$). Brucellosis, especially human brucellosis, is a public health problem in the region of Prizren. The incidence is very

high, and this area remains an endemic area for this disease. It's needed to mobilize the veterinary and public health services to put under the control of brucellosis, and even intent to eliminate it.

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1. Introduction

Brucellosis is a problem epidemic-epizootic and endemic in many countries, especially in countries around the Mediterranean and has developed farming. Is a contagious disease, a zoonosis typically known as 'undulant fever', 'Mediterranean fever', Malta fever", ect (CFSPH&IICAB, 2009). Brucellae are coccobacilli or short rods, non-motile, gram-negative, and moderate acid-fast and aerobic of which the growth characteristics are well defined. Three types of the bacteria that cause brucellosis – *Brucella abortus*, *Brucella melitensis* and *Brucella suis* (CDC). Brucellosis is a multisystemic disease with a broad spectrum of symptoms. Typically, brucellosis begins as an acute febrile illness with nonspecific flu-like signs such as fever, headache, malaise, back pain, myalgia and generalized aches. Drenching sweats can occur, particularly at night. Splenomegaly, hepatomegaly, coughing and pleuritic chest pain is sometimes seen. Gastrointestinal signs including anorexia, nausea, vomiting, diarrhea and constipation occur frequently in adults but less often in children (CFSPH&IICAB, 2009). In humans, brucellosis can be caused by *B. abortus*, *B. melitensis*, *B. suis*, rarely, *B. canis* or (Dedushaj and Humolli, 2005). Prizren and its region, for years considered an endemic area for brucellosis (Muçaj et al., 2000). The first case of human brucellosis recorded in 1980 in the village Restelicë (Dragash), and then registered in Rahovec and Prizren (Dedushaj and Humolli, 2005). These three municipalities included in this region and have a predominantly agricultural economy and livestock, compared with other parts of the country. Human brucellosis is important diseases with major socioeconomic impact on the community of this region, and therefore requires a multisectoral approach to be put under control. This of course has its economic cost, so research in this direction assists the competent authorities in the design and implementation of appropriate policies for the protection of public health, breaking the chain of infection.

For the purpose of research we had a retrospective epidemiological evaluation of disease humane brucellosis in the Prizren region, the incidence and its trend from 2003 to 2012, and comparison with earlier data.

2. Materials and methods

Prizren Region includes five municipalities (Prizren, Suharekë, Malishevë, Rahovec and Dragash). In this region, according to Census 2011, lives 396 691 inhabitants. While about 62% of them live in rural areas, where the main activity is farming and farm life. The data source for our material are Applications for infectious diseases, Epidemiological surveys and Monthly and Annual Reports of the National Institute of Public Health in Prizren. The data were processed by the descriptive epidemiological method and statistical analysis and where are presented in tables and charts. All of the data are processed with Microsoft Exell 2007.

3. Results

In the period from 2003 to 2012 in this region of the country recorded 215 cases of human brucellosis. In the municipality of Prizren is registered the highest number of cases ie 94 cases or 43.72%, while the lowest number was recorded in the municipality of Malishevë 9 or 4,19% cases. Meanwhile, follow Dragash with 70 cases or 32.55%, with 23 cases Suhaeka or 10.7% and Rahovec with 19 cases or 8.84% (Table 1).

From the results presented in table 1, year shows the most cases of human brucellosis have been 2010, with 36 cases, while in 2006 we had the last recorded cases of human brucellosis, only 5 of them, of which three in Prizren and in one case in Suhareka and Dragash (Table 1).

Most affected by human brucellosis have been men with 140 cases or 65.12%, while female gender with 75 cases or 34.88%. In all cases dominate the rural areas and those affected by it in both sexes. Affected women have proven to be housewives and deal with household chores, being more frequent contact with pets (Fig. 1).

Table 1

Human brucellosis in Prizren region by years, municipalities and gender

Nr	Year	Prizren			Suharekë			Malishevë			Rahovec			Dragash			m	f	Total
		m	f	Total	m	f	Total	m	f	Total	m	f	Total	m	f	Total			
1	2003	7	2	9	0	0	0	1	0	1	1	1	2	1	3	4	10	6	16
2	2004	8	8	16	1	0	1	0	0	0	0	1	1	7	7	14	16	16	32
3	2005	2	4	6	1	0	1	0	0	0	0	1	1	2	8	10	5	13	18
4	2006	1	2	3	0	1	1	0	0	0	0	0	0	0	1	1	1	4	5
5	2007	6	0	6	0	0	0	1	0	1	1	1	2	2	2	4	10	3	13
6	2008	1	1	2	5	0	5	0	1	1	1	1	2	4	2	6	11	5	16
7	2009	3	0	3	3	1	4	0	0	0	2	1	3	9	3	12	17	5	22
8	2010	12	5	17	4	2	6	2	0	2	2	0	2	7	2	9	27	9	36
9	2011	11	3	14	5	0	5	3	0	3	1	0	1	4	1	5	23	5	28
10	2012	14	4	18	0	0	0	1	0	1	2	3	5	3	2	5	20	9	29
Total		65	29	94	19	4	23	8	1	9	10	9	19	39	31	70	140	75	215

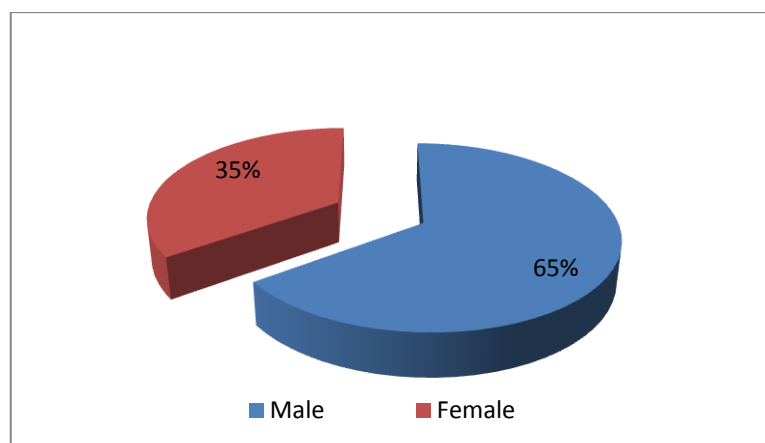


Fig. 1. Humane brucellosis reported by gender in the Prizren region in '03-'12

In the analyzed period the most affected age group was 25-44 with 67 cases or 31.16%, then 45-64 age group with 58 cases or 26.97% and 15-24 age groups with 40 cases or 18.6%. Meanwhile, ages 5-14 years old, over 65 years it 0-4 years and it has been the least affected by human brucellosis. Throughout this period, only four cases have affected children under 4 years. The four cases were male children. In all age groups, men were most affected by the human brucellosis disease, age over 65 years exclusively dominated women (Fig. 2).

During the period 2005-2012, the human brucellosis disease has been present mostly in the months of May and June with 20 cases, followed by 19 cases per month September, August 16, and so on (Fig. 3).

In Fig. 4 we can see human brucellosis incidence per 100000 populations. According to the results expressed in the chart for clearly indicates that the incidence of human brucellosis in Prizren region is higher than its level at the country level, with the significance of $p < 0.05$. Thus the average incidence is 5.82 per 100,000 populations in the region until national level is 3.92. The obvious difference between the levels of incidence in the Prizren region and country level, leaving the Prizren region still an endemic area for the disease in the country (Fig. 4).

In chart 5 we compare the incidence of the Prizren region with incidence in the country and the countries of the EU / EEA for a period of five years (2006-2010). Here we see that the incidence of human brucellosis, except that it is high in the Prizren region and in our country, it tends to easily increase and indicates that brucellosis is not under control, while at the level of the European Union countries is low and has a downward trend. Furthermore,

some countries have reported zero cases, or rather not reported all cases of disease of human brucellosis, as what are Denmark and Liechtenstein (Fig. 5).

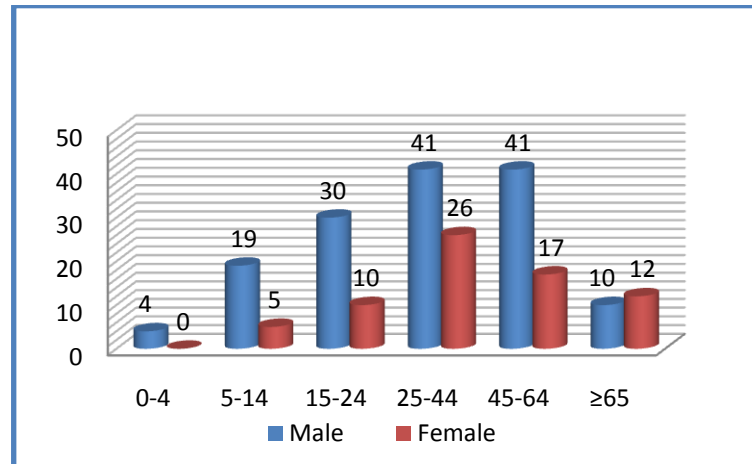


Fig. 2. Humane brucellosis by age group in the Prizren region, '03-'12

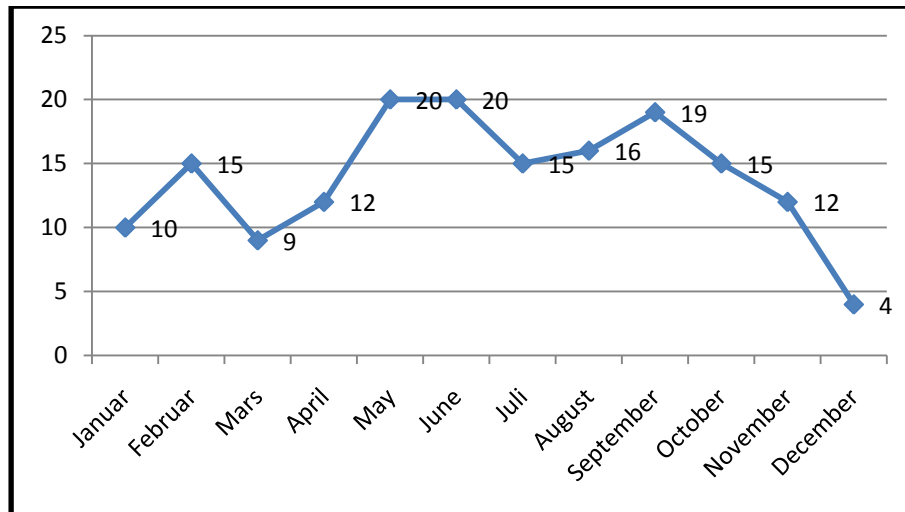


Fig. 3. Cases of Human brucellosis per month in period of 2005-2012

ECDC has not yet published a report with the data for 2011 and 2012; therefore we were not able to make a full comparison with our data. For this we have only received 5 year period 2006-2010. This may not be the full picture for human brucellosis, although the incidence of Prizren region is much higher than in the countries of EU/EEA.

4. Discussion

Brucellosis a contagious disease which threatens the health of humans and animals. Experienced for centuries, knowledge of grounding forms of the disease caused by *Brucella* were not enough to fight against this dangerous zoonotic be successful (Cvetnic et al., 2008). Brucellosis is considered one of the most dangerous zoonoses and represents a public health problem in countries around the Mediterranean Sea and in some Latin American countries, but also occurs in European Union countries. For example, brucellosis is endemic in Greece (Jelastopulu E., 2008). Infection of human brucellosis caused to people who are in touch professionally with animals (farmers, veterinarians, housewives to us, etc.) and the consumption of products from infected animals (milk, cheese). Human brucellosis can be very serious, with debilitating and sometimes chronic, which can affect many organs.

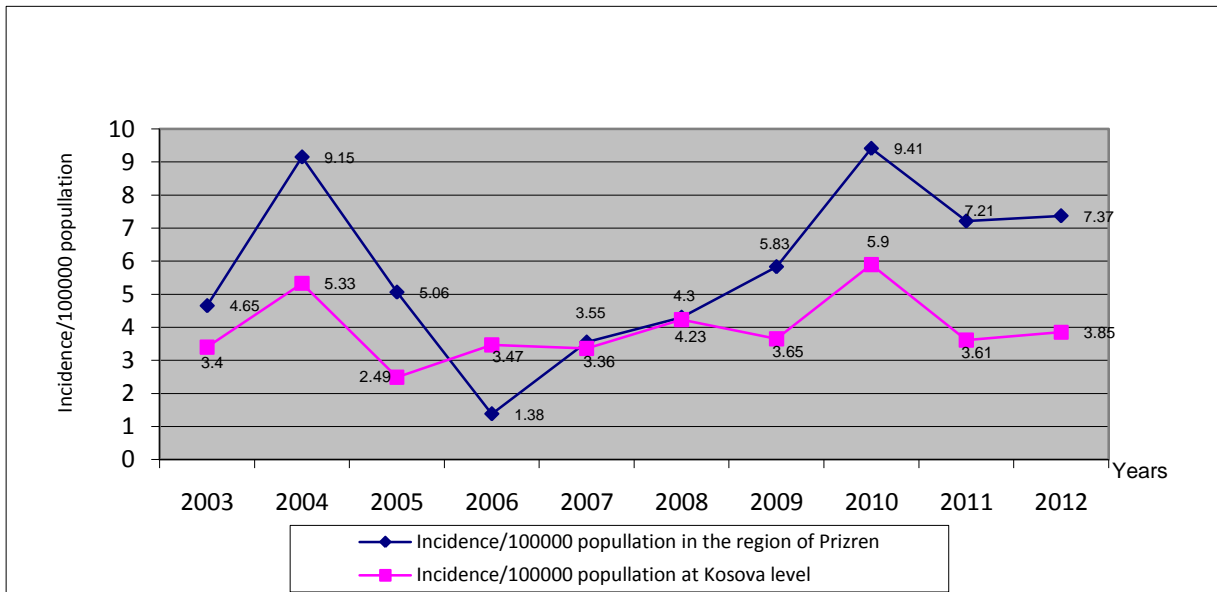


Fig. 4. Incidence of humane brucellosis in the region of Prizren compared with the incidence in country level for 2003-2012 y.

*Data at Kosovo level reported by the National Institute of Public Health of Kosovo.

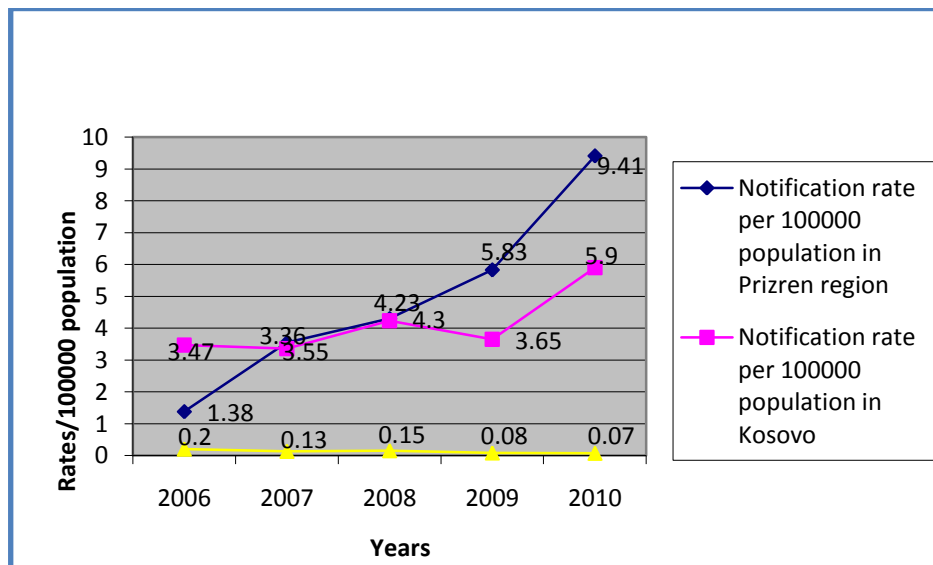


Fig. 5. Comparison of the incidence in the region of Prizren, Kosovo and the States of the EU / EEA 2006-2010.

*Data for EU/EEA countries reported in Annual Epidemiological Report 2012.

*Data at Kosovo level reported by the National Institute of Public Health of Kosovo.

About 70% of the total 215 cases of human brucellosis in the region of Prizren are reported from rural areas and it seems that contact with infected animals and dairy products are the main source of disease. Only in the village Restelicë have registered about 7% of all cases of human brucellosis in which livestock and dairy product such as cheese, yoghurt, curd etc., represent a major economy to its residents. Reported high incidence of the disease (5.82 / 100,000), compared to the incidence in the country level (3.92) (data are used from NIPHK) and European (0.126) (ECDC; 2013). According to incidence, the Prizren region represents an endemic area for this bacterial disease across Kosovo. This seems to be a situation unchanged since the 1996-2000 years (Muçaj S. Et al, 2000), and we had found that this disease is endemic disease further in this region. In all cases '03-'12, reported

on human brucellosis affected males with about 65% of cases, while the age of 25-64 years has been affected by more than 58% of all cases. The same trend is reported by countries of the European Union (ECDC; 2013). In our research municipalities with the most cases of illness of human brucellosis are reported by Prizren with 94 or 43.72%, followed Dragash, Suhareka, Rahovec and finally Malishevë with only 9 cases or 4.2%. Prizren region's economy relies largely on agriculture and livestock, and brucellosis that directly affects the budget of the local population. In today's times when movement of animals and people is so great socioeconomic impact of brucellosis can be extended throughout the country. The role and importance of animal vaccination and health education represent important area, which we have not explored here with due to lack of data in this regard, but remains an important subject of study in the future.

5. Conclusion

According to our survey results conclude that humane brucellosis is still a major problem for public health in the Prizren region, but also across Kosovo. Municipality of Prizren and Dragash remain most affected by human brucellosis, which appears to be uncontrolled in these municipalities, despite the measures taken by the authorities. Municipalities in the Prizren region must mobilize veterinary services and public health introduced Brucellosis disease under control, even going towards its elimination. Competent health authorities must necessarily develop and implement long-term strategy to eliminate the disease. Access should be multisectoral, including veterinary services, health and education. Local health and veterinary services should be included in these programs, and in the cases as educators and promoters of the fight against brucellosis and humane brucellosis. Farmers should be educated and motivated to vaccinate their animals, because it represents the main measure for prevention and eradication of brucellosis.

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