

The Prevalence Rate of Human Brucellosis in Sanandaj County, West of Iran

Sayyad S¹, Malak mohammadi M², Miri B², Gharib A³, Sayyadi M⁴ and Vahabi A^{5*}

¹Kermanshah University of Medical Sciences, School of Medicine, Kermanshah, Iran

²Kurdistan University of Medical Sciences, Health Center of Sanandaj, Sanandaj, Iran

³Deputy of research and technology, Kurdistan University of Medical Sciences, Sanandaj, Iran

⁴Kermanshah University of Medical Sciences, Ghods Hospital, Paveh, Iran

⁵Department of Public Health, School of Health, Kurdistan University of Medical Sciences, Sanandaj, Iran

* Corresponding Author: vahabiahmad@gmail.com

Abstract: Brucellosis is one of the most important diseases in some parts of Iran including Kurdistan province. The disease can be transmitted by indirect or direct contact to infected animals or their products. The present study was conducted to evaluate the prevalence rate of human brucellosis in Sanandaj County. The data were collected from April 2008 to March 2009 from patient records that were collected by Health Center of Sanandaj. Totally, 48 cases of brucellosis from rural and urban areas were recognized. The most prevalent rate was reported in patients aged >50 years old (13=27.1%), followed by age group of 20-29 years old (25%). The lowest prevalent rate was recorded in patients aged 30-39 years (7=14.6%). Educational health programs related to this problem in this region can be decrease the number of the cases of brucellosis. Using Pasteurized dairy products to decrease the incidence of brucellosis is suggested.

[Sayyad S, Malak mohammadi M, Miri B, Gharib A, Sayyadi M and Vahabi A. **The Prevalence Rate of Human Brucellosis in Sanandaj County, West of Iran.** *Life Sci J* 2014;11(3s):23-25]. (ISSN:1097-8135). <http://www.lifesciencesite.com>. 5

Keywords: Brucellosis, Prevalence, Epidemiology, Iran

Introduction

Brucellosis, also known as “undulant fever”, “Mediterranean fever” or “Malta fever” is a zoonosis disease. Brucellosis is almost transmitted by indirect or direct contact with infected animals or their products, invariably (WHO, 2006). The disease affects people of all age groups and of both sexes, worldwide. Brucellosis is one of the most important human diseases in many parts of the world especially in the Mediterranean countries of Europe, north and east Africa, the Middle East, south and central Asia and South America. It is a contagious, costly disease of ruminant animals that also affects humans (Rahman et al., 2011). Although brucellosis can attack other animals, its main threat is to cattle, bison, and swine. The disease is a zoonotic disease caused by different species of the genus *Brucella*, a small gram negative bacteria (Baek et al., 2003; Kakoma et al., 2003). The disease is appears in three forms: acute, sub- acute or chronic. The agent of the disease often causes damage to the urinary-genitalia tract in animals. *Brucella* parasites, can cause weakness, lethargy, fever, weight loss, and sweating in human (Kassiri et al., 2013). The disease can be removed from human when it is eradicated in animals (Mohamed et al., 2010). The agent of the disease was isolated from the spleen of a person who died from the disease at the end of the nineteenth century. The first diagnosis of brucellosis in Iran was reported by Pasteur Institute of Iran in 1930 (Kassiri et al., 2013).

The incubation period of brucellosis normally is 1 to 3 weeks, but it can be more before showing signs of infection (Seleem and Boyle, 2010). Sanandaj County is one of the endemic foci of Brucellosis in Iran, thus the present survey was conducted to evaluate the prevalence rate of human Brucellosis in Sanandaj County.

Material and Methods

The study was a descriptive cross-sectional survey. The survey was conducted in Sanandaj county from April 2008 to March 2009. The data were collected from patient records from April 2008 to March 2009 that were collected by Health Center of Sanandaj. The data were collected from health centers, hospitals and private clinics of sanandaj county by communicable disease branch of Health Center of Sanandaj County.

Results

Totally, 48 persons from urban and rural areas of Sanandaj county were reported as Brucellosis disease. 34 (70.8%) cases of the disease were reported from rural areas and the others (29.2%) were reported from urban areas. The most prevalent rate was reported in patients aged >50 years old (13=27.1%), followed by age group of 20-29 years old (25%). The lowest prevalent rate was recorded in patients aged 30-39 years (7=14.6%). 32 cases (66.7%) of the disease had a contact with animals

that 87.5% of them were reported from rural areas and 16 cases (33.3%) had no contact with animals that most of them (62.5%) were lived in the cities. Among all of Brucellosis disease in Sanandaj county, 40 cases (83.3%) have used milk and the others have used cheese (4= 8.3%). 3 cases had no contact to

dairy product consumption (Table 1). The most prevalent rate of the disease was reported in August (14.6%), followed by July and December (12.5%). The lowest prevalence rate of Brucellosis (2.1%) was reported in April.

Table 1: The prevalence rate of human Brucellosis, Sanandaj Conty, 2008-2009

Gender	Habitat	Age					Contact to animal		Dairy product consumption				Total
		10-19	20-29	30-39	40-49	+50	Yes	No	Milk	Cheese	Other	No consumption	
Male	City	-	-	2	2	4	4	4	7	-	-	1	8
	Village	3	6	2	1	6	16	2	15	1		2	18
Female	City	1	-	-	4	1	-	6	4	1	1	-	6
	Village	4	6	3	1	2	12	4	14	2	-	-	16
Total		8	12	7	8	13	32	16	40	4	1	3	48

Table 2: The prevalence rate of Brucellosis in rural and urban areas of Sanandaj County due to months

Months	Urban Areas	Rural Areas	Total
April	-	1	1
May	1	3	4
June	1	3	4
July	1	5	6
August	2	5	7
September	2	-	2
October	-	3	3
November	1	2	3
December	3	3	6
January	1	4	5
February	1	1	2
March	1	4	5
Total	14	34	48

Discussion

In the present study, 48 cases were reported as Brucellosis disease. The incidence rate of brucellosis was 10.9/100000 of the population. The incidence rate of brucellosis was 73.5 per 100,000 of population in Kurdistan province (Esmailnasab et al., 2007). The incidence rate of this disease is different from 1 to 78 cases per 100,000 of population in Mediterranean and Middle East countries (Al-Freihi et al., 1986). This index of the disease in endemic areas of Brucellosis can be more 550 per 100,000 of the population (Gad & Kambel, 1998; Wendell, 1990, Perez-Rendon Gonzalez et al., 1997). The incidence rate of the disease in Iran was 132 cases per 100,000 of the population ((Esmailnasab et al., 2007). The incidence rate of the disease in Azarbaijan-e Sharghi (Farahbakhsh et al., 2012) was 113 cases per 100,000 of the population, that is different from the findings of the present study. Brucellosis is one of the most important endemic

diseases in certain parts of Iran. The prevalence rate of the disease in Iran has been reported as 0.5% to 10.9% in different provinces (Moradi et al., 2006; Hasanjani Roushan et al., 2004;). The findings of a study in Tehran province has showed that this index of brucellosis was 17.5/100 000 and the main source of infection was fresh cheese and milk that is similar to our findings (Sofian et al., 2008). The prevalence rate of brucellosis in Erbil, Iraq was 10.7% (Kareem Rasul and Yousif Mansoor, 2012) that is similar to our survey. The prevalence rate of the disease in this region is high especially among females compared to males. This difference can be attributed to the fact that females are more involved in working in house by contact with infected meat or milk during preposition as housekeeper in this area. The women in this part of the country have a major role in managing animals and dealing with their products or their work as farmer in rural areas, thus they are at risk to the disease. The findings are similar to the findings of Erbil city (Kareem Rasul and Yousif Mansoor, 2012). The prevalence rate of brucellosis in different parts of Iran was different from 1.5 up to 107.5/100000 of the population. The highest levels of infection were reported from Hamedan with 107.5, Kurdistan province with 83.5, Azarbaijan Gharbi with 71.4 and Zanjan with 67.1/100000 of the population (WHO, 2003; Haji-Abdolbaghi et al., 2001; CDC of Iran, 2004). Thus, its prevention, control and eradication are a major challenge for public health program.

Acknowledgments

The Authors thank gratefully to all Physicians, health workers of Sanandaj city and all of the patients that helped us to complete this study.

References

1. Al-Freihi HM, Al Mohaya SA, Al Mohsen MF, Ibrahim EM, Al-Sohaibani M, Twum Danso K, et al. Brucellosis in Saudi Arabia: diverse manifestations of an important cause of pyrexial illness. *Ann Saudi Med.* 1986;6:95-7.
2. Baek BK, Lim CW, Rahman MS, Kim CH, Oluoch A, Kakoma I (2003). Brucella abortus infection in indigenous Korean dogs. *Canadian Journal of Veterinary Research* 67: 312–314.
3. Centers For Disease Control (2004). Epidemiology status of Brucellosis in IRAN 2003. Tehran Centers For Disease Control
4. Esmailnasab N, Banafshi O, Ghaderi E, Bidarpour F (2007). The investigation of changes on prevalence rate of Brucellosis disease from Kurdistan province in 2006. *Vet. J. Islamic Azad Uni.* 3(1): 53-58.
5. Farahbakhsh M, Koosha A, Zakery A, Valizadeh Kh (2012). Determination of Burden of Common Diseases in East Azerbaijan, 2007. *Journal of Medicine Faculty, Tabriz Uni of Med. Sci.* 34(1):63-69.
6. Gad MO, Kambel RA (1998). Evaluation of brucella Enzyme Immunoassay Test in comparison with bacteriological culture and agglutination. *Journal of Infection* 36:197-201.
7. Haji-Abdolbaghi M, Rasoli nejad M, Loti B (2001). The epidemiological study of clinical, diagnostic and cure situation of 505 patients affected by brucellosis. *Medical college J.* 4:34-46.
8. Hasanjani Roushan MR, Mohrez M, Smailnejad Gangi SM, Soleimani Amiri J, Hajiahmadi M (2004). Epidemiological features and clinical manifestations in 469 adult patients with brucellosis in Babol, Northern Iran. *Epidemiol Infect* 132:1109—1114.
9. Institute of Environmental Science and Research Surveillance. Brucellosis, epidemiology in New Zealand. New Zealand: Public Health Surveillance. [Online] Available from: www.surv.esr.cri.nz. [Accessed on 3 April, 2013].
10. Kakoma I, Oluoch AO, Baek BK, Rahman MS, Kiku M (2003). More attention warranted on Brucella abortus in animals. *Journal of American Veterinary Medical Association* 222, 284.
11. Kareem Rasul D, Yousif Mansoor I (2012). Seroprevalence of human brucellosis in Erbil city. *Zanco J. Med. Sci.* 16(3): 220-226.
12. Kassiri H, Amani H, Lotfi M (2013). Epidemiological, laboratory, diagnostic and public health aspects of human brucellosis in western Iran. *Asian Pac J Trop Biomed* 3(8): 589-594.
13. Mohamed NS, Stephen MB, Nammalwar S (2010). Brucellosis: A re-emerging zoonosis. *Vet Microbiol* 140: 392-398.
14. Perez-Rendon Gonzalez J, Almenara Barrios J, Rodriguez Martin A (1997). The epidemiological characteristics of brucellosis in the primary health care district of Sierra de C diz. *Aten Primaria* 19(6):290-295.
15. Rahman MS, Faruk MO, Her M, Kim JY, Kang SI, Jung SC (2011). Prevalence of brucellosis in ruminants in Bangladesh. *Veterinarni Medicina* 56 (8): 379–385.
16. Seleem MN, Boyle SM (2010). Brucellosis: a re-emerging zoonosis. *Vet.*
17. Sofian M, Aghakhani A, Velayati A, Banifazl M, Eslamifar A, Ramezani A (2008). Risk factors for human brucellosis in Iran: a case-control study. *International Journal of Infectious Disease* 12: 157-161
18. Wendell H.H (1990). Modern chemotherapy for brucellosis in human. *Rev of Infec Dis* 12(6):87-89.
19. World Health Organization (2003). Human health benefits from livestock vaccination for brucellosis: case study. *Bull World Health Organ.* 81(12):867-876.
20. World Health Organization (2006). The control of neglected zoonotic diseases, A route to poverty alleviation. Report of a Joint WHO/DFID-AHP Meeting with the participation of FAO and OIE. WHO/SDE/FOS/2006.1.
21. Moradi Gh, Esmail Nasab N, Ghaderi E, Sofi Majidpour M, Salimzadeh H (2006). Brucellosis in Kurdistan Province from 1997 to 2003. *Annals of Alquds Medicine* 2(1):32-37.