Prevalence of Brucellosis in West Azarbaijan Province, Iran from 2009 to 2010

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ABSTRACT

Brucellosis, with regard to public health and its impact on socio-economic status of society is important matter in the world that can be transmitted to humans through contact with animals or their products as an occupational hazard to persons. Thus, its prevention, control and eradication are a major challenge for public health policy makers. This survey analyzes the prevalence of brucellosis in West Azarbaijan province, Iran. This was a descriptive-analytical study in which 152 cases of brucellosis from 2009 up to 2010. The cases were defined by clinical symptoms and confirmed by a positive standard agglutination test. Titer 1:80 or greater using standard tube agglutination method was estimated as a positive result. Information about the sex, age, location, occupational risk, contact with the animals recorded by health stuff. Patient's data was analyzed and described by using SPSS software and analyzed with T test and X^2. 152 cases were studied. Most of them were male. (63.16%) and married (65.7%). Mean age of them was (37.46) in the female group. The mean age of patients was 36.84 years. The mean age in rural patients was 31.23 years and in urban 39.56 years old. Their hospitalization period was from 1 to 14 days (Mean: 7.5 days). The epidemic peak occurs in May (31.5%) that is closely related to the months associated with delivery and abortion in animals, it might be expected that occupational exposure, production and consumption of fresh cheese would result in a peak of human cases in this month .Most of them were lived in Urmia city and vicinity. Any of them were taught about prevention of disease. There was a relationship between sex with age (p<0.001) and with place of living (p<0.05). Farmers are more affected but, as females are mostly cooperating in stockbreeding tasks, homemaker females are also greatly affected. In villages, students also take share in stockbreeding tasks and help their parents, so the prevalence rate is also high among them. In other surveys, contact with livestock and husbandry are also forming some of risk factors. According to this study, cattle breeders in villages are the most affected groups. People training, about transition paths, prevention methods, food supply and delivery supervising could decrease disease prevalence.

Key words: Brucellosis; Prevalence, Urmia, Iran

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INTRODUCTION

Brucellosis is caused by a type of gram-negative bacteria of the genus called Brucella resulting in reproductive failure in animals and febrile diseases in humans still remains widespread and endemic in the developing countries [1].It is generally classified into six species [2] and can contaminate human through cuts or abrasions in the skin and conjunctiva surface, infectious aerosols inhalation, contact with contaminated animals and consumption of their meat [3]. The complications of disease are somatic symptoms like weakness, fever, sweating, back pain, weight loss, headache and psychological symptoms [4].

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Bacteriological detection of disease depends on the isolation of the bacteria from blood and bacteriological tests and its biotype that would take at least one week [5]. It causes considerable medical expenses due to reduced production and reproductive disorders of affected animals [6]. Disease needs prolonged treatment with antibiotics often leaving disabling complications, and results in significant economic losses due to loss of working hours [7]Itis an occupational problem for certain professions who work in domestic animals [8].In Iran, disease is more extensive for cooperation of women with men in their occupations in rural areas and has also a high prevalence during spring and summer for the domestic animals delivery [9]. This disease is more common in Mediterranean countries, Latin America and Middle East [10]. Urmia city, in the north-western part of Iran that is located in Middle East is one of the areas with high prevalence of brucellosis, many ethnic groups and people are engaged in agriculture and animal husbandry. Poor health condition, limited veterinary support services and husbandry practices aggravated the spread of this disease. However, increasing trend of brucellosis prevalence in West Azarbaijan province needs prevention, control and eradication as a major challenge for public health program. The aim of this study is determining prevalence of Brucellosis in West Azarbaijan province, Iran from 2009 to 2010.

MATERIALS AND METHODS

A descriptive-analytical study in which 152 cases of brucellosis patients who admitted at one year were studied in hospital of Urmia with clinical symptoms suggestive of brucellosis from 2009 up to 2010. All cases of brucellosis data from medical records were gathered. The data registered and analyzed by health group. The cases were defined by clinical symptoms and confirmed by a positive standard agglutination test. Titer 1:80 or greater using standard tube agglutination method was estimated as a positive result.

Information about the age, sex, location, occupational situation, and contact with the animals were recorded. Statistical analysis was performed using Statistical Package for Social Sciences (SPSS) for Windows, version 15.0. The significance of differences between groups was determined using Chi-square. A value of $P \leq 0.05$ was considered as statistically significant.

RESULTS

Demographic data and information about the nature and history of disease form completed by a physician. The study sample included 152 patients that (36.84 %) of them were female and 48 (63.16 %) were males. (34.3 %) of the patients were single and (65.7 %) were married. The mean age of the patients' age group were (37.46). The commonest factor was unpasteurized milk products (58.2%). The most common age group was 20-24 (28.9 %). Disease was more common among housewives (30.2%) and farmers (20.9%). The average of hospitalization stay was 4 days (from 1 to 14 days) and (10.5 %) of the patients were stayed more than 10 days in the hospital (Mean: 7.5 days). During the study, none of the patients had died due to the severity of disease. The highest proportion of admissions in May (31.5 %) that is closely related to the months associated with delivery and abortion in animals, that might be expected that occupational exposure, production and consumption of fresh cheese would result in a peak of human cases in this month and the lowest in February (5 %) of the total cases were recorded. the proportion of admission was from Urmia city (81.6 %) for accessible for indigenous people to the hospital. Most of other patients from other cities transferred for their ill situation (19.6 %).

DISCUSSION

According to World Health Organization (WHO), Brucellosis is a major health problem that has remained as an important public-health problem and zoonotic infection in many developing countries particularly in our region that despite all efforts to control this disease, it is still endemic in different provinces [11].All Brucellosis infections in humans are due to the direct or indirect contact with infected animals and foods. Brucellae are found in a great numbers in the milk and abortive products of infected animals and thus brucellosis has become an occupational disease. The present survey was conducted to determine the prevalence of Brucellosis in West Azarbaijan Province. In this study, most of the patients were lived in Urmia city and the commonest transmission was unpasteurized milk products (58.2%).Data from developing countries in the Mediterranean basin, particularly the Middle East, reported high rates ranging in rural areas that they had a history of infected cheese and milk consumption [12]. In the other studies, consumption of fresh cheese and milk produced from unpasteurized milk was reported to be a significant risk factor for brucellosis [13, 14].According to our findings similar to another study disease was more common among housewives (30.2%) and farmers (20.9%). Another study in the urban areas showed a higher incidence of

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brucellosis in females [15].The highest proportion of admissions in May (31.5 %) and lowest in February (5 %) of the total cases were recorded. the proportion of admission was from Urmia city (81.6 %) for accessible for indigenous people to the hospital. Most of other patients transferred for their ill situation (19.6 %), the variation in prevalence rates of brucellosis among population in different geographical places may be related to variation in existence of disease among animals, social habits and occupational contact of the population [16].We found a significant relationship between age, place of living and sex of patients with prevalence of the disease (p<0.05). Another study also showed an increase in prevalence with advancing age [17] and in another one, a higher rate in slaughterers was reported (20%) [18].The prevalence of brucellosis shows marked variation between countries. In the present study, a higher prevalence was observed in the younger age group. The mean age in rural patients was 31.23 years and in urban 39.56 years old.

Because of serious economic costs that cause serious problems in Ranchers' economy, all of the participants agreed with livestock vaccination for brucellosis. The study demonstrated a high cost-effectiveness of the economic benefit of vaccination and for the farmers in the region. Unfortunately, no cost-effectiveness studies have been done till now to support similar financial benefits from this kind of vaccination.

CONCLUSION

Based on the findings of our study, we conclude that prevalence of brucellosis asa major public and animal health problem is high in owing to their close contact with animals, such as farmers and females are mostly cooperating in stockbreeding tasks, homemaker females are also greatly affected, moreover students that take share in stockbreeding tasks and help their parents. This study confirmed the endemicity of brucellosis among people living in rural areas and consuming unpasteurized milk and raw products with animal origin were identified as the main risk factors. People training, about transition paths, prevention methods, food supply and delivery supervising could decrease disease prevalence. A good healthcare system based on preventive measures would help to decrease potential infection risks and reduce incidence of disease.

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