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Short communication

Risk practices and awareness of leptospirosis in an abattoir in northwestern Nigeria

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ARTICLE INFO

ABSTRACT

Article history:

Received 14 August 2012

Accepted 25 August 2012

Available online 28 August 2012

Keywords:

Leptospirosis
Abattoir workers
Awareness
Risk practices
Infection
Zoonosis
Nigeria

The study was designed to assess the presence of risk practices and level of awareness of leptospirosis among abattoir workers. The study was conducted in an abattoir located in Northwestern Nigeria. Pretested questionnaires were administered via interview to 73 of the abattoir workers willing to participate in the study. There was a low level (5.48%) of awareness of leptospirosis among the abattoir workers. Also risk practices for infection by *Leptospira* were present among the abattoir workers. This study has shown that the abattoir workers are at risk of infection by *Leptospira* in the course of their work due to the low level of awareness of the disease, the presence of risk practices and inadequate use of protective clothing.

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1. Introduction

Zoonotic diseases are an importance threat to public health worldwide. They represent about 70% of the number of emerging infectious diseases in recent time (Cutler *et al.*, 2010). Abattoir workers constitute a major group at risk of occupational zoonosis, due to the close contact that exists between them and animals/tissue of

animals during slaughtering or processing. Occupational zoonoses are diseases that result from exposure of humans to animal diseases during work. An estimated 320,000 occupationally related deaths from infectious diseases are reported yearly worldwide (Haagsma *et al.*, 2011). The likelihood that majority of the animals brought for slaughter to be harbouring chronic or subclinical zoonotic diseases increase the risk of infection among abattoir workers (Swai *et al.*, 2010).

Leptospirosis is an infectious zoonotic disease of veterinary and public health importance caused by pathogenic bacteria belonging to the genus *Leptospira*. The disease is transmitted via contact with tissue or urine of infected animal reservoirs such as cattle, sheep, pigs, dogs and rodents. Transmission occurs via direct contact of the mucous membrane or broken skin with urine or tissue of infected animals or indirectly with contaminated environment especially water contaminated with urine of infected animals (Ahmad *et al.*, 2005; Vijayachari *et al.*, 2008). Human leptospirosis manifest as a wide spectrum of clinical illness, ranging from subclinical or mild infections to severe multi-organ failure associated with high mortality (Ramakrishna *et al.*, 2008; Patil *et al.*, 2011; DebMandal *et al.*, 2011).

The attitude, knowledge and practices among livestock workers especially those in the abattoir, is therefore, a major factor that influences the risk of infection and spread of zoonotic diseases in the abattoir. Knowledge and awareness of disease existence creates a platform for behaviour change that will help in the prevention of diseases and while its absence reduces the perceived threat of the disease (Agampodi *et al.*, 2010) as well as prioritization and dedication of resources to the prevention and control of disease by the government.

Therefore, this study was designed to assess the presence risk practices for disease transmission and level of awareness of zoonotic diseases with special emphasis on leptospirosis among abattoir workers in the Zango abattoir Zaria.

2. Material and methods

The study was conducted in the Zango abattoir Zaria Kaduna State Zaria located in the Northern Guinea Savannah zone of Nigeria (Ayo *et al.*, 1999). Its lies on latitude 17°N and longitude 7°4'E. The abattoir is owned by the Kaduna State Government and managed by its Ministry of Agriculture (Ngbede *et al.*, 2012). The abattoir receives the largest population of cattle brought for slaughter in Zaria and thus responsible for a large part of the meat consumed in Zaria. The area is characterized by a tropical climate with three distinct seasons; the cold dry (November - February), hot dry (March - April), rainy seasons (May – October) (Ayo *et al.*, 1999). An average rainfall of about 1092.8mm and a mean monthly temperature of 13.8 -36.7°C (Agbogu *et al.*, 2006).

Pretested questionnaires containing both closed and opened ended questions) were administered to 73 of the abattoir workers willing to participate in the study by means of interview. The questions were interpreted in the local dialect (Hausa language) of the workers during the administration. The questionnaire was used to assess the risk practices and level of awareness of leptospirosis.

The data obtained were entered into Microsoft Excel® sheets and the frequencies converted to percentages and presented in form of tables.

3. Results

Out of the 73 respondents only 1 was a female with majority of the respondents having basic education (primary education) and aged between 15 – 45 years. There was a low level of leptospirosis awareness i.e. only 4 (5.48%) of the respondents were aware of the existence of leptospirosis (Table 1). Out of the seventy three workers interviewed, 58 (79.45%) were exposed to urine, body fluid, tissue or aborted materials of animals. Forty five (61.60%) used boots while 28 (38.40%) used slippers to protect their legs from contact with potentially infected materials. Sixty nine (94.50%) do not protect their hands from contact with potentially infected animals or materials during work. After contact with tissue, urine, body fluid or aborted materials; 14 (15.00%), 22 (30.10%) and 37 (50.70%) of the workers washed their hands immediately after contact, after intervals of contact and at the end of the day's work, respectively. Fifty three (72.60%) of the workers have had wounds on the hands or legs during work and fifty (94.30%) out of these fifty three still worked with the wounds (Table 2).

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potentially infected animals or materials during work. After contact with tissue, urine, body fluid or aborted materials; 14 (15.00%), 22 (30.10%) and 37 (50.70%) of the workers washed their hands immediately after contact, after intervals of contact and at the end of the day's work, respectively. Fifty three (72.60%) of the workers have had wounds on the hands or legs during work and fifty (94.30%) out of these fifty three still worked with the wounds (Table 2). Twenty nine of the workers used cellophane or plaster to prevent contamination of wounds during work, 3 used strips of fat from the slaughtered cattle, 6 went to the chemist for treatment, 20 will leave the wound unprotected once the bleeding was not profuse and there were no response to this question from 15 workers (Table 2).

Table 1

Demographic features and level of awareness of leptospirosis among abattoir workers in the Zango abattoir Zaria.

Demographic Features	Total no. of respondents	Awareness of Zoonosis	
		Aware	Not aware
Sex			
Males	72	3	69
Females	1	1	0
Age Group			
15 – 30	28	1	27
31 – 45	24	3	21
46 – 60	8	0	8
> 60	3	0	3
Level of Education			
None	16	0	16
Primary	35	0	35
Secondary	18	0	18
Tertiary	4	4	0

4. Discussion

The risk of infection by *Leptospira* is closely related to humans coming in contact with tissues or body fluid from infected animals. The risk of infection also increases especially when skin cuts or abrasions are present on the skin, or when the skin becomes softened by water as a result of the ease with which the organism can gain access into the body. The disease can also gain entrance into the body via the mucous membranes when there is contact with splashes or materials contaminated by *Leptospira*. Evidence of leptospirosis has been reported among cattle slaughtered in this abattoir (Ngbede *et al.*, 2012). Since the workers are not aware of the disease, there is the tendency for them not to take precautionary measures in protecting themselves from being infected with the organism. Though, a limitation to the results of the low level of awareness of leptospirosis may also have resulted from the absence of a local name (in local dialect) for the disease.

A lack of awareness and knowledge reduces the perceived threat of a disease and could minimize preventive measures taken it is just a platform for behaviour change (Agampodi *et al.*, 2010). This is supported by the fact that despite the awareness of brucellosis and tuberculosis among the abattoir workers, risk practices that predispose to infection by the etiologic agents of these diseases abound among the workers.

Leptospirosis is a disease that presents with protean clinical manifestation (Patil *et al.*, 2011) such as fever, headache, vomiting, conjunctiva suffusion and myalgia (Marou *et al.*, 2011). These signs mimic those of other diseases such as malaria, typhoid, hepatitis, lassa fever, dengue, yellow fever, tuberculosis and brucellosis (Yanagihara *et al.*, 2007) which are endemic in Nigeria. These non-specific symptoms exhibited makes diagnosis of leptospirosis difficult (Zhang *et al.*, 2012; Ngbede *et al.*, 2012) reducing the level of awareness of the disease.

Most of the workers are below the age of 40 years with many productive years ahead of them and constitute the major worker force. Therefore, the implication of occupational exposure to a preventable and potentially debilitating disease to the nation's economy and workforce cannot be overemphasized. Majority of the abattoir

workers have had basic literacy (primary education), which means it might be easier for them to appreciate relevant health information when it is provided by the relevant authorities.

Table 2

Potential risk practices predisposing to *Leptospira* infection among abattoir workers in the Zango abattoir Zaria.

Variables	No. of respondents (%)
Contact with tissue of animals, urine, body fluids and aborted materials	
Yes	58 (79.45)
No	18 (24.70)
Protection of the legs	
Boots	28 (38.40)
Slippers	45 (61.60)
Protection of the hands	
Yes	4 (5.50)
No	69 (94.50)
Regularity of hand washing	
Immediately after contact	14 (15.00)
At intervals	22 (30.10)
End of the day	37 (50.70)
Presence of wound on the hands or leg	
Yes	53 (72.60)
No	20 (27.40)
Working with wounds	
Yes	50 (94.30)
No	3 (5.70)
Protection of wound sustained during work	
Tied the wounded part with cellophane or plaster	29 (39.73)
Tied the wounded part with fat from the animal	3 (4.11)
Left the wounded part unprotected if it is not bleeding profusely	20 (27.40)
Went for treatment in a chemist.	6 (8.22)
No answer	15 (20.55)

5. Conclusion

This study has shown that the abattoir workers are at risk of infection by *Leptospira* in the course of their work due to the low level of awareness of the disease, the presence of risk practices and inadequate use of protective clothing among the abattoir workers. An enlightenment program on the implication of contact with animals/or their tissues without adequate protection and the need for use of such protective clothing for individuals at risk of infection by zoonotic agents especially abattoir workers is highly recommended.

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