KAP OF LEPTOSPIROSIS FROM SOUTH CHENNAI AMONG CONSTRUCTION WORKERS

Arulmozhi T[1], Natarajaseenivasan K[2*]

[1]Department of Microbiology, Prince Shri Venkateshwara Arts and Science College, Chennai-73, Tamilnadu, India

[2]Deparment of Microbiology, School of Life Sciences, Bharathidasan University, Tiruchirapalli-620014, Tamilnadu, India

Abstract : Leptospirosis is an acute infection of human with worldwide in distribution. To understand the Knowledge, Attitude and Practices related to Leptospirosis, a cross- sectional study was conducted among risk population in periphery of South Chennai in India. Of the total 208 participants, 42 (20.2%) were known about leptospirosis. Only less than 16 (7.7%) participants were aware about transmitting agent rat. Almost all the population participated in this study was involved in any of the risk factor involved in disease transmission like working without gloves and boots, and cleaning open sewers and garbage. Among the participants 208 (100%) reported seeing animals visible around house during daytime and also there houses were surrounded by more animals (91.1%). 182 (87.5%) of participant House was located low land whereas 26 (12.5%) was at High land location. Most of the participant house surroundings was wet it was around 182 (87.5%). All the participants are using at least any one activity to prevent rodent population including trap and poison. Based on findings it is known that knowledge about disease was very poor measures to be taken to improve awareness and also for good practices.

Index Terms - Leptospirosis, zoonosis, KAP, Risk population.

I. INTRODUCTION

Leptospirosis is an acute infective illness affecting both human beings and animals. It is caused by Spirochaetes of the genus Leptospira. The first recognized Leptospiral disease of man was the spirochaetal jaundice described by Weil in the year 1886. Leptospirosis now causes yearly epidemics in urban living conditions associated with extreme poverty (Johnson et al., 2004; Ko et al., 1999 & Sarkar et al., 2002). The genus Leptospira has both pathogenic and saprophytic members, with more than 250 pathogenic serovars, arranged in 25 serogroups, described so far. Leptospirosis is a major public health problem in developing countries where endemic transmission and outbreaks of this spirochaetal disease cause high mortality and morbidity (Bharti *et al*., 2003; Levett 2001 & McBride 2005). Which results from direct or indirect exposure to urine of animals infected with spirochetes of pathogenic Leptospira species, is one of the most common zoonosis in the world. Human infections primarily result after exposure to the urine of infected animals either directly or indirectly through contact with contaminated water or soil (Alexander, 1974). Study was conducted between the period of March- August 2015. The study persons involved in this work was served at least 5 months and it was made sure that they are constantly engaged with work activity. The study population was contract worker including Common construction trades are those of carpenter, electrician, heavy equipment operator, iron worker, labourer, mason, plasterer, plumber, pipefitter, sheet metal worker, steel fixer and welder.

1.1 Objective of study

The study was focused on the Knowledge, Attitudes, Practices related to Leptospirosis among construction worker.

II. MATERIALS AND METHODS

2.1 Study group

Common construction trades are those of carpenter, electrician, heavy equipment operator, iron worker, labourer, mason, plasterer, plumber, pipefitter, sheet metal worker, steel fixer and welder.

2.2 Random sampling:

Each subject is chosen randomly and by chance, with a known probability of being selected from a larger population**.**

2.3 Study design

About 208 individuals were randomly selected from risk group population. All are responded for the study. Cross sectional descriptive study was designed as a pilot study. Study area was selected in the periphery of south Chennai, Tamil Nadu, India. It is approximately 10km away from central Chennai, which has an area if around 50km. The study group was selected and conducted between the period of March-August 2015. The study persons involved in this work was served at least 5 months and it was made sure that they are constantly engaged with work activity

2.4 Survey instruments

Oral interview was conducted at construction visit using standardized survey instrument which was adapted following the recommendations for knowledge, attitudes, practices studies. The Questionnaire consist of about 19 questions, which includes demographic data, socioeconomic characteristics and information on knowledge (symptoms , mode of transmission and prevention) , attitudes, practice. Three different languages (Tamil, Telugu, Hindi) were used for oral interview. The study was conducted among construction worker.

2.5 Data analysis

Questionnaires reviewed completely and the numerical data were entered into an electronic database and validated in SPSS Version 20.0. Categorical data was presented as Frequency Table and Percentage.

III. RESULT AND DISCUSSION

Table 1 Demographic and occupational characteristics of study population (N=208) in south Chennai.

Characters	Number (N=208)	%
Demographics		
Gender		
Male	168	80.8
Female	40	19.2
Age		
Below 20	0	0
20-30	135	64.9
30-40	44	21.2
40-50	29	13.9
Above 50	0	0
Region		
Rural	184	88.5
Semi Urban	24	11.5
Urban	0	0
Illiterate		
Nature of Occupation		
Domestic work	0	0
Outdoor labor	131	63.0
Indoor non-labor	77	37.0
Professional	0	0
Educational Qualification		
Graduate	0	0
HSc	3	1.4
High School	72	34.6
Primary	66	31.7
Illiterate	67	32.2

Out of 208 interviewed 80.8% was female only 19.2% was male and 64.9% was from 20-30 year group about 21.2%, 13.9% was from 30-40. 40-50 years of age group respectively. Most of the participants (88.5%) are from rural community and none of them from urban. 131 (63%) of participants were out door labor and about 37% was in door non-labour. Of the interview participants educational qualicification was high school level (34.6%), primary level (31.7%) and illiterate was about 32.2

Table 2 Knowledge about leptospirosis

Knowledge regarding leptospirosis	Number (N=208)	%

What is leptospirosis?		
It is a disease	42	20.2
It is a disease transmitted by rat	20	9.6
It kills people	32	15.3
Do not know	176	84.6
Mode of transmission?		
Contact with urine of rats	16	7.7
Walking without shoes	6	2.9
Contact with flood water	3	1.4
Cleaning open sewers	2	1
Contact with garbage	3	1.4
Do not know	178	85.6
What can be done to avoid leptospirosis?		
Using shoes	11	5.3
Avoiding contact with water	9	4.3
Avoiding contact with garbage	7	3.4
Using protective clothing	0	0
Do not know	181	87.0
What are the symptoms of leptospirosis?		
Fever	23	11.1
Headache	3	1.4
Myalgia	0	0
Jaundice	0	0
Chills	6	2.9
Gastrointestinal Pain	0	0
All of the above	2	1
Do not know	174	83.7
Does leptospirosis have cure?		
Yes	7	3.4
No	6	2.9
Do not know	195	93.8
Can leptospirosis kill?		
Yes	4	1.9
No	4	1.9
Do not know	200	96.2

Only very little is known about knowledge about leptospirosis 42 (20.2%) participants said it is a disease and 20 (0.6%) answered as it is transmitted by rat and 32 (15.3%) reported as leptospirosis kills people. Still more than half % of people (84.6%) was unaware. About the question regarding mode transmission 16 (7.7%) said it is transmitted by contact with urine of rats Less than 2% reported as contact with flood water, cleaning open sewers, contact with garbage. Majority of the participants 178 (85.6%) do not know how the disease was transmitted. For the question what can be done to avoid leptospirosis most of them said 181(87.0%) do not know whereas less than 5% of participants said Using shoes Avoiding contact with water and Avoiding contact with garbage. For the question related to symptom only 23 (11.1%) of the participants said it is fever and 174 (83.7%) do not know and more than 93% of the participants do not know whether leptospirosis is curable and can kill people.

Table 3 Source of leptospirosis Knowledge

Source of knowledge regarding leptospirosis	**Number (N=208)**	**%**
TV	6	2.9

Friends	0	0
Health Services	0	0
Education	0	0
Newspapers	9	4.3
Radio	11	5.3
Community association	5	2.4
Do not know	177	85.1

Among the total people interviewed about the knowledge of its source, they received same form News papers (4.3%) Radio (5.3%) and TV (2.9%) were almost 85.1% participant do not know about the knowledge of *Leptospira.*

Table 4 Individual behavior and household level practice

Practice regarding leptospirosis	**Number (N=208)**	**%**
Type of protection used		
Cleaned an open sewer	58	27.9
Gloves	0	0
Boots	11	5.3
Gloves and boots	58	27.9
Nothing	81	38.9
Activities to prevent rodent at home		
Use of any poison	36	17.3
Use of illegal poison	2	1
Closure of rodent access to house	49	23.6
Closure of rat burrows	30	14.4
Use of rat traps	46	22.1
Nothing	45	21.6
Frequency of garbage elimination		
7 days per week	18	8.7
5–6 days per week	43	20.7
3–4 per week	90	43.3
1–2 days per week	57	27.4

Among the participants 58(27.9%) reported that they were cleaned an open sewer recently. About 58 (27.9%) of the participants were aware and they use both gloves and boots, where as 81 (38.9%) was not using any protective wears because they felt it was very difficult for them to work, 11 (5.3%) uses only Boots. About 32 (17.3%) used any poison, 49 (23.6%) closed rodent access in houses, Closure of rat burrows was reported by 39 (14.4%) and rat trap was used by around 46 (22.1%) to prevent rodent activities at home. Still about 45 (21.6%) was not using any preventive measure. In the total participant nearly 90 (43%) said garbage was cleaned 3-4 week followed by 57(27.4%) 1-2 days per week, 43 (20.7%) 5-6days per week and 8 (8.7%) 7 days per week respectively.

Table 5 Attitudes regarding leptospirosis

Attitudes regarding leptospirosis	**Number (N=208)**	**%**
Animal around house		
Cat	0	0
Dog	6	2.9
More animals	202	91.1
House location		
High land	26	12.5
Low land	182	87.5

House surrounding		
Wet	182	87.5
Dry	26	12.5
Animal behaviour		
Animals visible around house during day	208	100

Among those interviewed 208 (100%) reported seeing animals visible around house during day time and also their houses were surrounded by more animals 202(91.1%). 182 (87.5%) of participant House was located low land whereas 26 (12.5%) was at High land location. Most of the participant house surroundings was wet it was around182 (87.5%) and 100% participants said that many animals was visible around house during day.

Few reports on KAP related to leptospirosis have been published. The published studies represent heterogenic populations and most focus on knowledge and include few findings on attitudes and practices. Knowledge regarding leptospirosis and its causes was identified as a protective factor (odds ratio = 0.39; 95% confidence interval between 0.16 and 0.93) against leptospirosis in a study in Jamaica (Keenan, 2010) but no other studies have explored this association. Study conducted in brazil (Navegantes de Arau´jo, *et al*., 2013) found that, 90% of the urban slum residents had heard about leptospirosis. This number is comparable to the proportion registered among canoeists and dairy farmers from England where 95% and 90% of study respondents, respectively, reported having heard of leptospirosis (Phillip *et al*., 1992; Bennett, 1991). Furthermore, the level of knowledge about the transmission of leptospirosis was similar among participants in this study and among canoeists from England. 88% of the respondents in Salvador and 80% in England correctly identified sources of leptospirosis transmission (Phillip *et al*., 1992). As per our initial prevalence and the KAP analysis revealed the presence of leptospirosis with less exposure of the study population in the knowledge about the control practices. The present survey showed variation in the prevailing knowledge and attitude of the participants with various prevention practices. So it is necessary to create awareness programs for more number of audience and also to design broad repeated community based health education (most of the diverse in language) especially for those with low education and with less control efforts. This study also suggests that member of the local body should also take measure to reduce their exposure to sources of leptospirosis

REFERENCES

[1] Alexander, A.D. 1974. Leptospira. Lennette EH, Spaulding EH,Truant JP, eds. Manual of Clinical Microbiology. Second edition: Washington, DC: American Society for Microbiology, 347–354.
[2] Bennett, R.N. 1991. A survey of dairy farmers' decisions concerning the control of leptospirosis. Vet Rec 10: 118-21.
[3] Bharti, A.R., Nally, J.E., Ricaldi, J.N., Matthias, M.A., Diaz, M.M., Lovett, M.A., Levett, P.N., Gilman, R.H., Willig, M.R., Gotuzzo, E., Vinetz, J.M. 2003. Leptospirosis: a zoonotic disease of global importance. Lancet Infect Dis. 3: 757–771.
[4] Johnson, R.C. and Faine, S. 1984. Leptospira, In NR Krieg and JG Holt (ed) Bergey's manual of systematic bacteriology. Williams & Wilkins, Baltimore. 1: 62-67.
[5] Keenan, J. 2010. Risk factors for clinical leptospirosis from western Jamaica. Am J Trop Med Hyg. 83: 633–636.
[6] Ko, A.I., Galvao Reis, M., Ribeiro Dourado, C.M., Johnson Jr, W.D., Riley, L.W., 1999. Urban epidemic of severe leptospirosis in Brazil. Lancet. 354: 820– 825.
[7] Levett, P.N., 2001. Leptospirosis. Clin Microbiol Rev. 14: 296–326.
[8] Navegantes de Araújo. W., Finkmoore, B., Ribeiro, G.S., Reis, R.B., Felzemburgh, R.D.M., Hagan, J.E., *et al*. 2013. Knowledge, attitudes, and practices related to leptospirosis among urban slum residents in Brazil. Am J Trop Med Hyg. 88(2): 359–363.
[9] Philipp, R., King, C., Hughes, A. (1992) Understanding of Weil's disease among canoeists. Br J Sports Med. 26: 223-227.

[10] Sarkar, U., Nascimento, S.F., Barbosa, R., Martins, R., Nuevo, H., Kalafanos, I., Grunstein, I., Flannery, B., Dias, J., Riley, L.W., Reis, M.G., Ko, A.I. 2002. Population-based case-control investigation of risk. Am J Trop Med Hyg. 66(5): 605-10.