SITUATION ANALYSIS OF VISCERAL LEISHMANIASIS (KALA-AZAR): KNOWLEDGE ATTITUDE AND PRACTICES (KAP), SYMPTOMS AND RISK FACTORS IN SAPTARI DISTRICT



DHARMENDRA KUMAR YADAV

T.U. Registration No: 5-3-28-71-2006

T.U. Examination Roll No: 333

Batch: 063/064

A thesis submitted in partial fulfilment of the requirements for the award of the degree of Master of Science in Zoology with special paper Parasitology

> Submitted to Central Department of Zoology Institute of Science and Technology Tribhuvan University Kirtipur, Kathmandu Nepal 02, 2015

RECOMMENDATIONS

This is to recommend that the thesis entitled **''Situation Analysis of Visceral Leishmaniasis** (Kala-azar): Knowledge Attitude and Practices(KAP), Symptoms and Risk Factors in Saptari District'' has been carried out by Dharmendra Kumar Yadav for the partial fulfilment of Master's Degree of Science in Zoology with special paper Parasitology. This is his original work and has been carried out under my supervision. To the best of my knowledge, this thesis work has not been submitted for any other degree in any institutions.

Date.....

.....

Pitambar Dhakal Lecturer Central Department of Zoology Tribhuvan University Kirtipur, Kathmandu, Nepal

LETTER OF APPROVAL

On the recommendation of supervisor "Pitambar Dhakal" this thesis submitted by Dharmendra Kumar Yadav entitled "Situation Analysis of Visceral Leishmaniasis (Kala-azar): Knowledge Attitude and Practices (KAP), Symptoms and Risk Factors in Saptari District" is approved for the examination and submitted to the Tribhuvan University in partial fulfilment of the requirements for Master's Degree of science in Zoology with special paper Parasitology.

Date.....

.....

Prof. Dr. Ranjana Gupta Head of Department Central Department of Zoology Tribhuvan University Kirtipur, Kathmandu, Nepal

CERTIFICATE OF ACCEPTANCE

This thesis work submitted by Dharmendra Kumar Yadav entiteled "Situation Analysis of Visceral Leishmaniasis (Kala-azar): Knowledge Attitude and Practices (KAP), Symptoms and Risk Factors in Saptari District" has been accepted as a partial fulfilment for the requirements of Master's Degree of Science in Zoology with special paper Parasitology.

EVALUATION COMMITTEE

.....

Supervisor PitambarDhakal Lecturer Central Department of Zoology Tribhuvan University Kirtipur, Kathmandu, Nepal ••••••

Head of Department Prof. Dr. Ranjana Gupta Professor and Head Central Department of Zoology Tribhuvan University Kirtipur, Kathmandu, Nepal

External Examiner

Internal Examiner

Date of Examination: 12/04/2015

DECLARATION

I hereby declare that the work presented in this thesis has been done bymyself, and has not been submitted elsewhere for the award of any degree. All sources of information have been specifically acknowledged by reference to the author or institution.

Date.....

Signature

Dharmendra Kumar Yadav

ACKNOWLEDGMENTS

It would not have been possible to carry out and present the study in this form without the help of many well wishers who in different way helped me during the course of this duty. It is my right as well as study to express gratitude to them.

For most, I must express my sincere and respectful gratitude and hearty thanks to my honourable supervisor Mr. Pitambar Dhakal. So my first gratitude goes to him. He is an ideal guide and a well skilled lecturer presently working at Central Department of Zoology, T.U., Kirtipur, Kathmandu. I am really indebted to him for noble advice, valuable comments and encouragement from the beginning to the end of this thesis work.

I would like to express my gratitude to Prof. Dr. Ranjana Gupta, Head of the Central Department of Zoology, who gave me sharp advices. I would like to express my gratitude to Prof. Dr.P.N.Mishra, Prof. Dr. T.K. Shrestha, former Head of the Central Department of Zoology. Then, I heartily express my gratitude to Prof. Dr. A.S. Tamrakar former chairman of Central Department of Zoology, T.U. Kirtipur. She always encouraged all the students by her behavior. I would like to express several thanks to Mr. Janak Subedi and Ashok Bahadur Bam for their advices.

I am thankful to Mr. Sunil Kumar Yadav, Entomologist and Mr. Shishir Kumar Pant, Assistant Entomologist in vector Borne disease centre, District Public Health office who classified the collected vectors.

I would like to record my thanks to my friends Mr. Madhav P. Yadav, Mr. Sanjay Kumar Yadav, Mr. Sanjan Bdr. Thapa and Mr. Sunil Tiwari for their encouragements throughout the study.

I wish to extend my sincere gratitude to father Sri Mohan Prasad Yadav, my mother Mrs. Anjani Devi Yadav, elder brother Mr. Bisheshwar P. Yadav and his wife Mrs. Durga Devi Yadav, all of them have not only supported economically but encouraged me with love and affection throughout the student life.

Finally, I would like to express my thanks to all the friends and colleagues who directly and indirectly helped me.

ABSTRACT

Visceral Leishmaniasis(VL) Kala-azar(KA)is a chronic infection of reticulo-endothelial system and is nearly always fatal, if left untreated. The present research was conducted in Sagarmatha Zonal Hospital Saptari district with an aim to analyze the situation of VL, VL related knowledge , attitude and practice, and risk factors of the disease. A total of 250 suspected cases were subjected to aldehyde test, rk39 test and bone marrow examination according to the laboratory diagnostic facilities available in District Hospital Saptari. The finding revealed that total 39 +ve KA cases out out from 88 examined sample 44.31% cases were found to be positive for Kalaazar. It has been found that males were affected more than females with the ratio of 5.75:4 in male and female. The age group most affected to be was found to be 15-19 years which constitutes 11.36% of total positive cases. Out of total KA cases, the distribution was found to be 16.8% among labour 22.72% among illiterate people, 28.8% among those earning <1000 Rs/month and 53.40% form the "hut" houses. Likewise, questionnaire survey among 263 respondents reveals that maximum cases were found among those respondents who have never used bed nets 69.23% sleep on ground floor (100%) and who keep cattle nearby the houses 61.53%. Regarding the knowledge of VL, none of the respondents was aware of the fact that KA is transmitted by sandfly.

The Present study show that poverty, age, illiteracy, occupation, type of house, lack of knowledge regarding VL, sleeping on the ground floor without using bet nets, malnutrition, keeping cattle nearby the house and sharing the same house with cattle were responsible risk factors for the spread of KA. It was, therefore, very necessary that the people in the endemic areas should be made well conversant about the disease and vector sandfly for the prospective of sustainable management of the disease

TABLE OF CONTENTS

Page No.

Declaration	i	
Recommendations		
Letter of Approval		
Certificate of Acceptance	iv	
Acknowledgements	v	
Table of Contents	vi	
List of Table	ix	
List of Abbreviations	Х	
Abstract	xii	
1 INTRODUCTION	1	
1.2 OBJECTIVES	3	
J General objective:	3	
J Specific objectives	3	
1.3 HISTORICAL BACKGROUND ABOUT LEISHMANIASIS		
1.3.1 Global Review		
1.3.2 Kala-azar in Asian Region	5	
1.3.3 Kala-azar in India		
1.3.4 Status of Kala-azar in Nepal	7	
J Background	7	
J Situation Analysis	10	
J Study of Leishmania / HIV Co-infection	10	
J Indoor Residual Spraying (Vector Control Measures)	11	
1.4 THE CAUSATIVE AGENT OF VISCERAL LEISHMANIASIS:		
Leishmania donovani	11	
1.5 SANDFLY, THE CARRIER AGENT OF VISCERAL LEISHMANIASIS		
2 LITERATURE REVIEW		
3 MATERIALS AND METHODS		

3.1 Study Area: 24			24		
	J Introduction of Saptari District 24				
	J Climatic Condition 2:				
	J	Selected Hospital	25		
3.2 Case study			25		
3.3 Duration of Study			25		
3.4 Methods of Data Collection 20			26		
3.4.1 Morbidity and mortality data collection			26		
	3.4	.2 To determine where and why do people prefer to visit for			
		diagnosis and treatment	26		
	3.4	.3 To determine indigenous and imported cases of Kala-azar	26		
	3.4	.4 Diagnosis and Case Detection	27		
	J	Blood Sample Collection	27		
	J	Bone marrow collection	27		
	J	Aldehyde Test	27		
	J	rk 39 Test	28		
4 F	RES	SULTS	29		
4.1	An	alysis of laboratory test result of Visceral Leishmaniasis	29		
4.1	.1 /	Age and sexwise adehyde test results of VL in Sagarmatha Zonal			
		Hospital, Saptari	29		
4.1	.2 A	Aldehyde and Bone marrow test for VL	31		
4.1.3 Occupation wise prevalence of Kala-azar in Saptari District 32			32		
4.1.4 Education wise prevalence of Kala-azar cases 33			33		
4.1.5 Prevalence of KA in relation to the monthly income 33			33		
4.1.6 Distribution of Kala-azar in house wise system 34			34		
4.1.7 Prevalence of KA in relation to sanitary measures in Population 35			35		
4.1.8 Animal husbandry practices among the study of KA pop^n Kala positive cases 35			35		
4.2	A١	VALYTICAL FINDING OF SURVEY RESULT OF V2 RELATED KNOW	LEDGE		
AT	TIJ	TUDE PRACTICES OF POPULATION AND STATUS OF MAN POWER	BY		
QU	QUESTIONNAIRE METHOD 37				
4.2.1 Knowledge of Respondents towards Kala -azar 3			37		

4.2.2 Attitude of Respondents towards Kala-Azar		
4.2.3 Practices of Respondents towards Kala-Azar		
4.3 SITUATION ANALYSIS OF KALA-AZAR IN SAPTRARI DISTRICT		
BASED ON SECONDARY DATA	41	
4.3.1Health institution wise Kala-azar cases Reported form 2001-2008	42	
4.3.2 Health institution and month wise KA cases recorded in SZH in Saptari.	43	
4.3.3 Age and Sex Wise KA Cases Recorded in SZH in Sptari in 2065/066		
4.3.4 Month and Sex wise KA cases recorded in SZH Saptari in 064-065		
Saptari district 2001-2008	44	
4.3.5 Year wise KA cases, incidence, death and case fatality rate (CFR %)		
in Saptari District 2001-2008	45	
4.3.6 Month wise KA cases recorded in Sagarmatha Zonal Hospital	46	
4.3.7 Age and Sex wise kala-azar Cases in 2008	47	
5 DISCUSSION	48-51	
6 CONCLUSION AND RECOMMENDATIONS	52-53	
REFERENCES	54-56	
ANNEX	57-58	

LIST OF TABLES

Page

Table 1: Profile of visceral leishmaniasis in Nepal 1980-2008	9	
Table 2: Age and sexwise adehyde test results of VL in Sagarmatha Zonal Hospital Saptari		
Table 3 Aldehyde and bone marrow test for VL	31	
Table 4 Occupation wise prevalence of Kala-azar in Saptari District	32	
Table 5: Education wise prevalence of Kala-azar cases	33	
Table 6 Prevalence of KA in relation to the monthly income	33	
Table 7 Distribution of Kala-azar in house wise system	34	
Table 8 Prevalence of KA in relation to sanitary measures in Population	35	
Table 9 Animal husbandry practices among the KA positive cases	36	
Table 10: Knowledge of Respondents towards Kala -azar	37	
Table 11: Attitude of Respondents towards Kala-azar	39	
Table 12: Practice of Respondents towards Kala-azar	40	
Table 13 Health institution wise KA cases Reported form 2001-2008	42	
Table 14 Health institution and month wise KA cases recorded in SZH in Saptari.	43	
Table: 15 Age and Sex Wise KA Cases Recorded in SZH in Sptari in 2065/066	44	
Table 16 Month and Sex wise KA cases recorded in SZH Saptari in 064-065	44	
Table 17: Year wise KA cases, incidence, death and case fatality rate (CFR %) in Sa	ptari district	
2001-2008	45	
Table 18: Month wise KA cases recorded in Sagarmatha Zonal Hospital	46	
Table 19: Age and Sex wise kala-azar Cases in 2008	47	

ABBREVIATION AND ACRONYMS

AIDS	-	Acquired Immune Deficiency Syndrome
CFR	-	Case Fatality Rate
CIR	-	Case Incidence Rate
CL	-	Cutaneous Leishmaniasis
CR	-	Central Region
DDT	-	Dichlorodiphenyltrichloroethane
DHO	-	District Health Office
EDCD/DoHS	-	Epidemiology and Disease Control Division/ Department of
	ŀ	Health Services
ELISA	-	Enzyme-linked Immunosorbent
ER	-	Estern Region
HIV	-	Human Immunodeficiency Virus
HPs	-	Health Posts
IgG	-	Immunoglobulin G
IgM	-	Immunoglobulin M
IM	-	Intramuscular
IRS	-	Indoor Residual Spraying
IV	-	Intravenous
KA	-	Kala-azar

KAP	-	Knowledge, Attitude and Practice
МоН	-	Ministry of Health
NNN	-	Novy, MacNeal and Nicolle
PHC/ORCs	-	Primary Health Centres/ Health Centres
PKDL	-	Post Kala-azar Dermal Leishmaniasis
RE	-	Reticuloendothelial
SAG	-	Sodium Antimony Gluconate
SHPs	-	Sub-Health Posts
SZH	-	Sagarmatha Zonal Hospital
VDC	-	Village Development Committee
VL	-	Visceral Leishmaniasis
WHO	-	World Health Organization