

AN ASSESSMENT ON THE PREVALENCE OF KALA-AZAR IN MUNICIPAL AREA OF KATIHAR DISTRICT, BIHARPrawin Chandra¹, Kashif Shahnawaz²**HOW TO CITE THIS ARTICLE:**

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ABSTRACT: INTRODUCTION: Kala-azar is a chronic infectious disease of the reticulo-endothelial system, characterized by irregular fever of long duration, anemia, leucopenia, hepato-splenomegaly and progressive emaciation. It has major medical, psychological, and financial implications and remains a serious public health problem in Bihar. **OBJECTIVES:** To find the prevalence of kala-azar and its associated factors & also to formulate preventive measures for the control of this disease. **MATERIALS AND METHODS:** This was a community based cross-sectional study, conducted in 5 municipal wards of Katihar district, from 1st Jan. 2014 to 31st Dec. 2014. Study population was selected by stratified random sampling method. From each ward families were selected by simple random sampling. After the collection of data using pre-designed and pre-tested Performa, prevalence of kala-azar in municipal area of Katihar district was studied. **RESULTS:** Among the total study population of 2095 people, 1089 were males and 1006 females. Maximum number of cases (60%) in our study was between 20-29 years of age group and 80% of them were males. Sixty percent (60%) of the cases belonged to low socio-economic status and 80% cases occurred in persons living in kutcha houses, where the walls of the room were made of mud. In 80% of the cases, distance of the cattle shed from houses was less than 15 meters. **CONCLUSION:** Young adults are more susceptible to kala-azar and the incidence gradually decline with age. Male preponderance may be due to some practices of adult males like sleeping in the cattle sheds or close to cattle sheds. The high incidence of the disease among low socio-economic group may be due to insanitary habits and surroundings which provide excellent breeding grounds and shelter for the sand fly.

KEYWORDS: Assessment, Kala-Azar, Prevalance. An Assessment on the prevalence of Kala-azar in municipal area of Katihar district, Bihar.

INTRODUCTION: Kala-azar is a chronic infectious disease of the reticulo-endothelial system, characterized by irregular fever of long duration, anaemia, leucopenia, hepatosplenomegaly and progressive emaciation. The disease is caused by a flagellated protozoan, leishmania donovani, injected into the human host by the bite of female phlebotomine sandfly. The vector in India is phlebotomus argentipes. In India, man is the only source of infection. Kala-azar can occur in all age groups. Males are affected more than the females. This is a disease of poor and is strongly associated with occupation. Rural population is mainly affected by this disease.

Kala-azar occurs in more than 80 countries in Asia, Africa, Southern Europe and South America with a total of 200 million people at risk (Murray H W,¹ & Guerin P et al.²) Ninety percent of the total estimated new symptomatic cases per year (About 5, 00000) belong to just five countries-India, Nepal, Bangladesh, Brazil and Sudan (Arias J R et al.³) Kala-azar is endemic along the plains of the Ganges and Brahmaputra rivers, i. e in the eastern states of India namely Bihar, Jharkhand, Uttar-Pradesh, Assam & West-Bengal.

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An estimated of about 166 million population are at risk in these five states. It is endemic in about 50 districts of these states; however sporadic cases are reported from a few other districts also. Currently about 32 districts out of 38 districts in Bihar especially the ones in the Kosi region, which includes katihar are affected. The disease is confined to rural areas and in people whose socio-economic condition is low and where conditions for the breeding of sand-fly exists. Sand-fly breeds in cracks & crevices in the soil & buildings. Overcrowding, ill-ventilation, accumulation of organic matters in the environment & sleeping on the floor without using fine mesh net around the bed and location of cattle sheds and poultry very near to human dwellings are the risk factors for the transmission of disease.

People who work in farming practices, forestry & mining have greater risk of being bitten by sand-fly. Movement of population between endemic & non-endemic areas can lead to spread of infection. Inadequacy of Kala-azar control programme financed by Govt. of India, absence of an effective vaccine in preventing the disease, failure to abolish the human reservoir, improper vector control, low socio-economic conditions, and increase in population movements have all compounded the already increasing trend to incidence of kala-azar.

We have selected katihar region because people here mainly belongs to the low socio-economic group and sanitation facilities are pitiable. Kala-azar is endemic here. It has major medical, psychological, and financial implications and remains a serious public health problem in Bihar (Ranjan A et al.⁴) Realising the problems of kala-azar to human beings, social and economic burden over society, in the forms of mortality and morbidity, compelled us to carry out this study.

The objectives of our present study were:

1. To find out the prevalence of kala-azar in katihar town.
2. To find out the associated factors of the disease.
3. To formulate preventive measures for the control of this disease.

MATERIALS AND METHODS: This study was a community based, cross-sectional study conducted in Katihar district of Bihar. Duration of study was from 1st Jan. 2014 to 31st Dec. 2014. Study population consisted of 2095 persons in five municipal wards of katihar district, and was selected by stratified random sampling method. From each ward families were selected by simple random sampling, ensuring that the study group in that particular ward comprises at least 10 percent of its population. Initially the proforma was pre-designed and pre-tested and then finalized. After finalization of proforma actual data collection was started.

The baseline information of the families like age, sex, occupation, education, socio-economic status, marital status, source of income, type of family, housing, etc., were collected. The morbidity data was recorded and clinical examinations were carried out. Cases were diagnosed by RK-39 strip test. Age was determined using voter identity card, ration card and an enquiry was also made in case of doubts. Collection of data was done by interview technique, observation, and clinical examination. Data collected was analyzed by applying appropriate statistical methods like percentages, tables.

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OBSERVATIONS:

Ward Number	Male	Female
03	230	177
18	234	230
27	172	182
41	255	245
43	198	172
Total	1089	1006

Table 1: Distribution of study sample according to sex

Table 1 shows ward-wise distribution of the population. The study population was a total of 2095 people, of which 1089 were males and 1006 females.

Age Group (in years)	Number of Cases	Percentage
0-9	00	00
10-19	00	00
20-29	03	60
30-39	01	20
40-49	01	20
50-59	00	00
60-69	00	00

Table 2: Distribution of cases according to age

Maximum number of cases (60%) was between 20-29 years of age group. [Table 2]

Sex	Number of Cases	Percentage
Male	04	80
Female	01	20

Table 3: Distribution of Cases according to sex

Among all the cases of kala-azar, 80% were the males. Male to Female Ratio was 4:1. [Table 3].

Socio-economic status	Number of Cases	Percentage
Group I	00	00
Group II	00	00
Group III	01	20
Group IV	01	20
Group V	03	60

Table 4: Distribution of cases according to Socio-economic status

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Sixty percent (60%) of the cases belonged to low (Group V) socio-economic status class (classified according to Modified B. G. Prasad Classification). [Table 4].

Type of House	Number of Cases	Percentage
Brick stone wall with thatch roof	01	20
Mud wall with thatch roof	03	60
Thatch roof & thatch wall	01	20

Table 5: Distribution of Cases according to type of houses

Table 5 shows that 80% of the cases occurred in kutccha house, where walls of the room were made up of mud.

Distance of cattle shed from house	Number of Cases	Percentage
Within 15 meters	04	80
More than 15 meters	01	20

Table 6: Distribution of cases according to distance of cattle shed from houses

In maximum number of cases (80%), the distance of the cattle shed from houses were less than 15 meters. [Table 6].

DISCUSSION: In the present study five kala-azar cases were detected. In the present series of five cases, the maximum number of cases were observed in the age group 20-29 years (60%). Only 2 cases (40%) above the age of 30 years. No case was found below 19 years [Table 2]. Thakur et al (1978),⁵ and Thakur (1984),⁶ observed two-third of cases between 10 and 29 years age group. The present study shows that the young adults are susceptible to kala-azar and the incidence gradually decline with age.

Current study shows preponderance among males and male: female ratio was 4: 1 [Table 3]. A male preponderance was also observed in studies of Thakur (1978),⁵ Aikat et al (1979),⁷ & Thakur (1984).⁸ C. P Thakur reported in 2000,⁹ that M: F ratio in kala-azar were 4: 1. Naik S R et al,¹⁰ in their series of works also found that males were affected more than the females and the most common age group was 20-30 years. The worker is of the impression that this male preponderance may be due to practices of adult males like sleeping in the cattle sheds or close cattle sheds where a high density of phlebotomus argentipes has been reported. Secondly, the dress of Bihari female (Saree) covers most of the body which might be a contributory factor in causing relatively low incidence of disease among them.

Our present study shows a high incidence of kala-azar among the persons of low socio-economic groups. Sixty percent (60%) of the patients were in group V (Lowest socio-economic status) and 20% were in group IV [Table 4]. According to the reports of previous epidemic in Bihar and elsewhere in the country the disease was rare among upper class persons, living in well-built and well ventilated house, but it is very common among poorest class people. Kala-azar patients were poorest of the poor.

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The high incidence of the disease among low socio-economic group may be due to the insanitary habits such as collection of garbage, cow dungs in and around the dwelling houses which provides excellent breeding grounds and shelter for the sand fly.

Maximum numbers of cases were found living in house which were made up of mud wall with thatch roof and presence of cracks in the walls of the rooms. In the present study, the houses of 3 cases out of 5 cases were made up of mud wall with thatch roof (60%). The house of one patient was made up with brick/stone wall with thatch roof (20%), while house of another case was made up with thatch wall & thatch roof [Table 5]. C. P. Thakur in 2000,⁹ reported 23% of patients of kala-azar lived in bricked houses, 68% in mud houses, and 8% in grass covered houses. Cracks in mud or stone wall are the breeding places for sandflies. This may be the reasons for the more cases occurrence in houses made up with mud or stone walls. Type of housing affects occurrence of kala-azar.

This study also shows that in 4 cases out of 5 (80%), cattle shed was within 15 meters of their houses, while in only one case (20%), the cattle shed was situated beyond the 15 meters [Table 6]. Cow/cattle dung in and around the houses provides an excellent breeding ground and shelter for the sand flies. This may be the reason for the more cases where distance of cattle shed from house was less.

CONCLUSION: Following conclusions were made from our present study:

1. Maximum number of patients of kala-azar was among 10-29 years of age group (60%).
2. Majority of patients were males (80%). Male: Female ratio was 4: 1.
3. Majority of patients of kala-azar were from low socio-economic group (60% from group V and 20% from group IV of socio-economic class, according to Modified BG Prasad Classification).
4. Sixty percent (60%) of patients were found living in houses which were made up of mud wall with thatch roof.
5. Maximum number of cases occurred with houses near cattle shed within 15 meters (80%).

RECOMMENDATIONS: Following measures should be recommended for the prevention of kala-azar:

1. Though the prevalence of kala-azar is very less in urban area, but in the present study five cases were found among 2095 persons. So, the surveillance of kala-azar is essential in urban area also.
2. Mosquito nets should be used to prevent the insect bite.
3. Breeding grounds such as damp & dark places, specially cracks & fissures in the floors and walls should be eliminated.
4. Insecticidal spray should be undertaken in houses and cattle sheds.
5. Antipoverty and house improvement programmes should be implemented.
6. Information, Education & communication for the awareness of the community regarding prevention of kala-azar should be carried out.

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