Lymphatic Filariasis in Rural Areas of Patna District, Bihar
A challenge ahead

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ABSTRACT

Patna district was endemic for lymphatic filariasis (LF). During November 2004, a lymphatic filariasis survey was carried out in seven randomly selected villages from four PHCs of Patna district. Of 1878 night blood smears (NBS) examined, 117 were found positive for W. bancrofti infection (mf rate 6.2%). Microfilaria carriers were detected from all surveyed villages. In all areas prevalence of microfilaria generally increased with age to maximum 15-34 years and then decline within most age-groups. More males (6.4%) were affected than the females (5.8%). All microfilaria (mf) carriers were residents of Patna district. Over all disease rate was 9.1%. Out of 171 diseased individuals, 121 persons were having hydrocele (6.4%). Disease rate was higher in males (12.0%) than females (4.1%). The mean mf density was 11.7. There was no significant difference of mean mf density in males and females. Vector density ranged from 205 to 780 per ten man hours. The survey indicates that the filariasis situation remained unchanged since last fifty years and still is one of the major public health problem in surveyed areas.

Key words: Lymphatic Filariasis, Patna, Rural areas

INTRODUCTION

Patna district, Bihar is situated around latitude 25.25 north and longitude 85.50 east and at an altitude of 150 to 200 feet above mean sea level. River Ganges passes through the district and river Sone forms its western boundary. The climate of the district is mostly hot and humid with moderate to heavy rainfall during monsoon. The total area of district is 3202 sq. kms. Population of the district is 47,09,851 (2001 Census). There are 23 Blocks, 12 PHCs, 333 Panchayats, 1764 villages, 22 Filaria Clinics and four NFCP

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Clinical examination was carried out of all respondents for any filarial disease manifestations viz., hydrocele, genital swelling and elephantiasis of limbs etc. and chyluria. The details were recorded in pre-designed proforma.

Indoor resting mosquitoes were collected with the help of aspirator and flashlight from 6.00 a.m. to 8.00 a.m. to find the infection and infectivity rates. Vector species (Culex quinquefasciatus) were dissected in a drop of physiological saline (0.68%). Head, thorax and abdomen of each female Culex quinquefasciatus dissected separately and examined under low power microscope. Water collections were examined for presence of breeding of vector species.

RESULTS

Microfilaria Prevalence

A total of 1878 persons were examined. Overall microfilaria prevalence was 6.2% and affected age groups were above 5 years. The mf rate for males was 6.4% and 5.8% for females respectively; however, the difference was not statistically significant. The youngest mf carriers detected was 8 years old boy and 5 years old girl, and oldest man aged 62 years and woman of 55 years respectively. The infection was only of W. bancrofti. The overall mf rate ranged between 1.6% (5-9 years) to 9.2% (25-34 years). All mf carriers were resident of Patna district of Bihar. A total of 1370 microfilariae were encountered in 117 mf carriers (mean mf density 11.7/positive). The median mf density for males &
females was 11.63 and 11.85 respectively. Microfilariae/20 µl of blood in males and females ranged between 1-120 and 1-59 respectively (Table 1).

Highest mf rate was detected in Ishapur village (8.9%) followed by Raipura village (8.7%), Shirpal Pur (5.2%), Laxmi Nagar (4.7%), Pasta village (3.1%), TamTam (2.4%) and Raj Bansi Nagar (0.9%).

**Filarial Disease Prevalence**

The overall disease rate was 9.1% (12% in males and 4.1% in females) and the difference was significant ($\chi^2=31.7$, $p<0.001$). The youngest age at which disease got detected was 6 years of boy & 8 years of girl respectively. The disease rate increased with the age in both the sexes and has suggested increasing trend. Among males 10.1% individuals were having hydrocele and rests of the 1.8% lymphoedema of various grades. All the persons with disease were negative for microfilaria.

However, the disease rate was highest (12.8%) in Pasta village and Raipura village followed by Shirpal pur (9.0%), Ishapur village (8.3%), Laxmi Nagar (3.8%), TamTam (2.4%) and none in Raj Bansi Nagar. All the surveyed villages have shown presence of lymphatic filariasis infection.

**Entomological Observations**

Altogether 441 Culex quinquefasciatus female mosquitoes were collected and dissected for the presence of microfilariae but none found positive for mf infection. The vector density per ten man hour for Culex quinquefasciatus was from 205 to 780 in the villages during survey period.

**DISCUSSION**

LF is not considered an urban disease anymore as the various risk factors for LF transmission are abundant in urban & rural areas and this is confirmed by the present survey in 7 villages with the mf rates ranging between 0.93% to 8.85% and disease rate between 0 to 12.8%. Of the 7 villages, only one did not have any case of lymphatic disease and could be factors like recent origin of infection in the village. The very low level of
microfilaraemia in younger ages might also support this statement. Similar findings were reported elsewhere.

Prevalence of disease at the same time increased with age. This pattern of age specific prevalence of microfilaraemia is comparable as observed elsewhere. Males were generally more likely to be microfilaraemc in the same age group due to probably high exposure to the mosquito bites.

The filarial disease rate is low up to the age of 14 years, then rises progressively up to the age of 65 years and above in both the sexes similar to findings from Patna, Sultanganj, and Varanasi.

The mf and disease rates were in Patna as 18.4% and 22% respectively in 1955 and after a gap of 47 years, there seemed significant decline in mf rate (18.4% to 6.2%) and disease rate from 22% to 9.1%. This requires further investigations to cross verify if this is the filarial situation and what had contributed to this decline.

The mean mf density 11.7 per positive in Patna is an indication of high transmission potential of lymphatic filariasis however, infection rate in vector mosquitoes not found in the area. The filaria situation and presence of parasitaemia in 6.2% reveal the need for mass drug administration required to control the situation before it touches a danger mark.

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