

SUMMARY

A village in Rajasthan was selected to study the distribution pattern of intestinal parasites in a selected community. One hundred and thirty households comprising 757 individuals selected at random, formed the study population.

The selected individuals were studied for a period of two years. Their faecal samples were collected once in every three months to observe the seasonal variation of the intestinal parasites in this community. Altogether eight surveys were carried out during the study, which facilitated the observation on eight prevalence rates and seven incidence rates of the different intestinal parasites encountered in different quarters of the two-year period.

Follow up of the same households and members rendered easy the gathering of information about the duration of excretion of a parasite by an individual, association of the parasite with the size of the household, their living conditions, socio-economic status and sense of personal hygiene. Eight examinations of faecal samples of the selected individuals yielded averages of the results in various epidemiological aspects of the intestinal parasites.

A total of 4399 stool samples was collected and examined. Seventeen intestinal parasites of different species could be recorded in this village. About 64 per cent of the population were harbouring one or more intestinal parasites. Multiple infection was found to be very common in this community.

Entamoeba coli (44.8 per cent) outranked all other intestinal parasites in its prevalence. Amongst the pathogenic protozoan parasites Giardia lamblia (13.6 per cent) topped.

An average of 7.6 per cent of the selected community had amoebiasis, ranging from 5 to 10.4 per cent. Hymenolepis nana was found to be the commonest helminth and occurred in 6.2 per cent of the population. Amongst nematodes, hookworm (4.7 per cent) was predominant, followed by roundworm and the latter was excreted by 4.6 per cent of the selected population.

Highest average prevalence rate (9.6 per cent) and incidence rate (6.3 per cent) of E.histolytica were recorded in the period July to September, coinciding with housefly abundance and seasonal rainfall. Comparatively higher prevalence rates of this infection in two of the three socio-economically different groups of the population reveals their low living standards. This infection was found to be prevalent more in adults and less in children. The overall prevalence could be recorded more in males than females. No relationship between susceptibility to this infection and the size of the household was established in the whole selected population. But this was remarkably noted in the low socio-economic groups in the area-wise prevalence of this parasite, highlighting the effect of overcrowding on the spread of this infection. Duration of excretion of this parasite in most of the cases was recorded to be about three months (positive during single examination). Clinical manifestations were reported only by about 20 per cent of the total excretors.

Highest prevalence rate (15.4 per cent) and incidence rate (11.1 per cent) of G.lamblia were found during the period April to June. This emphasises the capability of Giardia to tolerate high atmospheric temperature. Individuals belonging to the age group less than 15 years showed significantly higher rates than those of 15 years and above. No remarkable difference was observed in the prevalence of this infection in different sexes. Households with five and more members had comparatively higher prevalence rates. Only three persons continued to pass this parasite in their stool samples for about 21 months. About 73 per cent of the total attacks from this infection were confined to about three months only. Approximately 60 per cent of the individuals affected with giardiasis were symptomless carriers.

Higher prevalence rate of H.nana (7.9 per cent) was recorded in the quarter October to December and lower (5.2 per cent) in April to June. Children showed a significantly higher rate of this infection than adults. A significant association of this parasite with larger size of the household in the sweeper community of this village was observed. Symptomatic analysis of this infection highlighted its occasional pathogenic nature. Fluctuation of prevalence rates of H.nana in the different sub-areas of the village was found directly proportionate to level of health consciousness in the people and condition of their dwellings.

A direct correlation of higher prevalence of Ascaris lumbricoides with high rainfall and high humidity and an inverse correlation with high temperature was observed. Maximum prevalence was recorded during July to September (5.4 per cent). Larger prevalence of this infection among children below 15



years was found statistically significant, while sex-wise prevalence did not project any remarkable difference. Higher degree of association of ascariasis with larger households, overcrowded areas and in low socio-economic groups with poor hygienic conditions was observed. About 56 per cent of the positives with ascariasis were found to excrete the Ascaris eggs for more than three months, which highlighted the persistent nature of this nematode.

The highest prevalence rate (5.5 per cent) of hookworm was recorded in the months with high humidity. A higher degree of association of this infection was noticed in low socio-economic class with poor personal and group hygiene. A significantly higher infection in males and in the upper age group had been observed. Excretion of hookworm eggs for a longer period of time was noted in the economically weak section of the population of the selected village bringing into focus their inability to resist this infection.

Only six individuals were harbouring Taenia solium. Ratio of the affected males and females was 2:1. Of the affected persons only one male and one female were aged below 15 years, rest were older.

Taenia solium, Hymenolepis diminuta, Trichuris trichiura, Enterobius vermicularis and Strongyloides stercoralis were found to occur only in less than 1.5 per cent of the selected people. The low prevalence of T.trichiura, E.vermicularis and S.stercoralis was attributable to unfavourable climatic conditions prevailing in the selected area. A significant

difference in the prevalence of enterobiasis in different age groups was recorded. More number of children were excreting the eggs of E.vermicularis than that of adults.

Among the nonpathogenic intestinal parasites, E.coli was predominant ranging from a rate of 32.6 per cent to 59.7 per cent in prevalence. The highest prevalence and incidence rates during the hottest quarter April to June as recorded in this study could be ascribed to the habit of indiscriminate defaecation by the people, regular dust-storms occurring in this part of the year paired with its ability to overcome adverse situation. Like E.histolytica, individuals belonging to the lower age group were significantly less affected. The low socio-economic section of the population was found to be the worst affected.

Entamoeba hartmanni was also detected in higher percentage (7.3 per cent) during April to June highlighting its ability to withstand climatic hazards. A correlation of this protozoon with the larger size of the households with insanitary condition could be established.

The prevalence rate of Endolimax nana in the selected population was found to be high in the quarter October to December (9.1 per cent), while a high incidence rate was encountered during April to June. An outstanding feature of the observations is that the prevalence of this amoeba was more or less similar in all the three socio-economically different sections of the population. A significantly higher prevalence rate of this infection was noted in higher age group. Though nonpathogenic a good percentage (48.3 per cent) of the excretors of this parasite complained of entero-gastric troubles, most prominent being diarrhoea.

Prevalence of Iodamoeba butschlii was noted to be high during April to June, suggesting its capability to resist high atmospheric temperature. A significant difference in sex-wise prevalence of this parasite was recorded. Prevalence of this parasite was higher in males than in females. Higher prevalence of this parasite encountered in socio-economically low sections of the population brought into light their poor living conditions.

The average overall prevalence of Chilomastix mesnili recorded was only 3.2 per cent, that of Embadomonas intestinalis was 1.7 per cent and 0.4 per cent for Enteromonas hominis. Association of E.intestinalis with larger households particularly of low-socio-economic status and its restricted duration of excretion were noteworthy features. Prevalence rates of E.hominis during first and fourth quarters of the year were found to be significantly low.

The frequent detection of Entamoeba coli along with other intestinal parasites as encountered in this study may be due to high prevalence of the former in this selected community.

Symptomatic analysis with intestinal parasites in general revealed that most of the excretors of these parasites, pathogenic or nonpathogenic, were symptomless carriers. It was difficult to ascertain the role of each individual parasite in the causation of manifestation in the absence of information about intensity of each infection, serological changes and other infections etc. Hence, no conclusion could be drawn on the association of manifestations with different intestinal parasitic infections.

Difficulties faced during the study; conclusion drawn and suggestions made are stated in pages 257 and 259 respectively.