

High prevalence of giardiasis in an urban population in Niger

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Summary

A sample of 2569 persons (1190 m, 1379 f) from Niamey (population 329 000), Niger, showed a giardiasis prevalence of 28.5%. The prevalence was similar between males and females and highest in the age range 3-29 years.

Introduction

A survey for intestinal parasites was carried out in Niamey, capital of Niger, with 329 000 inhabitants. A total of 461 households from the six districts of the city were randomly selected. This sample comprised 2569 persons (1190 males, 1379 females). The family sizes varied from 1 to 20 subjects with a mean size of 5.6. A stool sample was obtained from all subjects and direct examination of fresh faeces and MIF concentration method were performed for each specimen.

A high prevalence of giardiasis (28.5%) was the most important result. The other parasites were *Entamoeba histolytica* (10.4%) ('trophozoites without ingested red cells' and/or cysts) and *Hymenolepis nana* (7%). No difference in prevalence of giardiasis could be established statistically between males (29.8%) and females (27.4%) ($\chi^2 = 16.2$, ns). Only the under-2 years of age group has a low prevalence (birth-1 year, 14.7%; 1-2 years, 17.5%). The highest infection rate was observed in the 3-4 years of age group (35.3%) (Figure 1). This could be explained by the weaning age, which in Niger is at 2 years. In infants, breast feeding has probably a protective effect against giardiasis. (In mice, protection against infection with *Giardia muris* by milk containing antibody has been

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proved (Andrew & Hewlet 1981).) At 8 months of age, the infants gradually start sharing the family meal and thus become more exposed to contamination.

We did not find a decrease of infection in adolescents and adults till 29 years. Commonly in highly endemic areas, levels of giardiasis in adults are low (Oyerinde *et al.* 1977; Knight 1980). This has been explained by immunological mechanisms that develop with increasing age (Knight 1980). In our study, a decrease in the prevalence was observed only in adults of 30 years or more (Figure 1).

Prevalence was low in families consisting of only 1 or 2 persons (12.5%). However, an analysis of infection rates according to the sizes of the families showed no statistically significant difference. Prevalence was not associated with socioeconomic status, type of water supply or toilet type. A study in urban Africa (Feachem *et al.* 1983) suggested that, if the overall level of faecal contamination is high, the particular type of toilet does not affect parasite infection rate. Personal and domestic cleanliness is probably the most important factor in the reduction of intestinal protozoa infection.

We think that the high prevalence of giardiasis in Niamey is a consequence of urbanization.

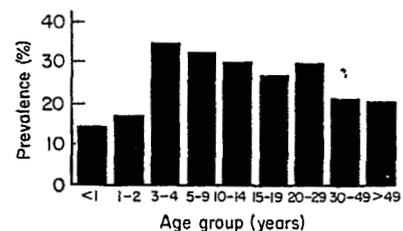


Figure 1. Prevalence of *Giardia intestinalis* infection by age group in Niamey.

In a parasitological survey of 1900 subjects in a rural area of Niger, prevalence of giardiasis was only 1.4% (personal data). Overcrowding, lack of hygiene, contamination of stored water and food, lack of frequent latrine maintenance noted by us, could explain the importance of giardiasis in Niamey.

Considering these results, a longitudinal study on a cohort of inhabitants of Niamey was started to assess morbidity and epidemiological aspects of giardiasis.

References

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