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Pattern of intestinal parasites among hosptial patients at Ile-Ife

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Summary

Intestinal and extraintestinal parasitic diseases continue to constitute important public health problems in many developing African countries. While malaria continues to ravage the continent, the silent onslaught of intestinal helminthiases and protozoal infection seem not to relent. The objectives of this study was therefore to determine the prevalence of intestinal helminthic and protozoan infections and to determine the trends in intestinal parasitic infections. Results of laboratory investigations for parasitic infections during a three-year period in two succeeding decades (1988-90 and 1996-98) were analysed. During the two periods 4233 (65.1%) of 6504 and 2297 (63.1%) of 3641 clinical specimens were respectively, positive for intestinal parasites. These results are very significant as determinants of the level of environmental and domiciliary hygiene. It is concluded that the findings should be of great concern to the local Authority Health Departments which should spur the government to concerted effort aimed at ameliorating the deplorable situation brought about by indiscriminate faecal disposal.

Keywords: *Parasitic disease, developing country, prevalence.*

Résumé

Les maladies parasitiques intestinale et extra-intestinale constituent toujours des problèmes de santé publique important dans les pays en développement tandis que le malaria continue à ravager le ??? L'attaque tranquille d'helminthrases intestinal et l'infection protozoal paraît de ne s'adoucir pas. Les buts de cette étude étaient de déterminer la fréquence d'helminthique intestinale et les infections de protozoan et pour déterminer la tournure en infections parasitiques intestinal. Les résultats des investigations laboratoires pour les infections parasitiques pendant une période de trois années dans des décennies successif (1988 – 90 and 1996 – 98) ont été analysés. Pendant les deux périodes, 4233 (65,1%) de 6504 et 2297 (63,1%) et 3641 des spécimens cliniques sont respectivement positifs pour les parasites. Ces résultats sont très important comme des déterminants du niveau d'hygiène environnement et domiciliaire. La conclusion est que les résultats de cette enquête devraient être un grand souci pour le service de la santé locale qui devrait encouragé. Le gouvernement à un effort concerté pour améliorer la situation lamentable causé par l'exécution fécal sans discernement.

Introduction

Parasitic diseases are cosmopolitan worldwide. While there has been a substantial reduction in the incidence and prevalence of parasitic diseases in the industrialized world, there continue to be important public health problems in developing countries [1] The unhygienic disposal of faeces and indiscriminate faecal disposal as well as prevailing congenial climatic conditions for parasite survival all have helped to sustain the incidence and prevalence of intestinal helminthiases at a level above what could be considered acceptable. Cowper and Woodward [2] in 1961 wrote "Urban conditions; as in Ibadan or Lagos, are even more favourable to transmission of this "backyard" infection than are village conditions" *Ascaris lumbricoides* alone has been reported to infect about a quarter of the world population with an estimated 155 million infections in Africa. [3] Even though rare nowadays, intestinal obstruction by worms remains a plausible differential in a holoendemic region as Nigeria [4,5,6,7].

In addition to intestinal parasitic diseases, extra intestinal parasitic diseases of great public health importance exist in Nigeria. Ile-Ife though a university city is still rural in most parts with a greater proportion of the population enjoying a sub-urban dwelling. The University Teaching Hospital in Ile-Ife receives a substantial proportion of its clientele from the rural areas. The objectives of this study are therefore [1] to determine the prevalence of intestinal helminthic and protozoan parasitic diseases in Ile-Ife by prospective and retrospective analysis of laboratory reports and [2] to determine the trends in intestinal parasitic infections.

Materials and methods

Prospective and retrospective analysis of laboratory reports in the parasitology laboratory of the teaching hospital over a period of three consecutive years 1996-1998 and 1988-1990 was carried out.

The results of investigations for intestinal parasites over three years 1996 - 1998 were prospectively analysed. The results obtained were then compared retrospectively with results of investigations over a period of three years (1988 - 1990) during the preceding decade. The analysis highlighted the types and prevalences of parasites identified over the study period. Simple saline and iodine preparations were used to identify ova and parasites. Chi square test was applied to demonstrate statistical significance in areas where there were differences in isolation of parasites.

Result

Specimens for parasitologic investigations were received from all specialties. Indications for investigations vary from simple medical tests to hospitalized patients. Specimens were received from children and adults of both sexes.

Tables 1 and 2 show the rates of recovery of intestinal parasites from specimens and a breakdown of parasite species by year over the study periods. Of 3641 stool specimens examined between 1996 and 1998 a total of 2297 (63.1%) parasites were identified while 4233 (65.1%) parasites were identified from 6504 specimens examined between 1988 and 1990. There was therefore generally no significant difference between rates of identification of parasites between the two consecutive decades. The breakdown of parasite species by year during the two study periods are also shown by tables 1 and 2. *Ascaris lumbricoides* continued to top the figure and this has remained constant over the years; 20.4% and 21.6% in 1988 - 1990 and 1996 - 1998 respectively. *S. mansoni* species were the least identified of the helminths during the periods studied with 0.05%. While only two cases of *S. mansoni* were identified in 1998 there was none identified in the three-years period 1988-1990. No case of fasciola was identified between 1996 and 1998 while one case was identified in 1990 during the first study period. The protozoan *Entamoeba histolytica* leads in its group with rates of 20.3% and 24.3% respectively, in the eighties and

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Table 1: Prevalence of intestinal parasites by year 1996-1998

	1996	1997	1998	Total (%)
No. Examined	1678	959	1004	36641
Helminths				
A. lumbricoides	343 (20.4)	302(31.5)	142(14.1)	787(21.6)
A duodenale	210(12.5)	152(15.8)	85(8.5)	447(12.3)
T. trichiura	10(0.6)	9 (0.9)	14(1.4)	33 (0.9)
S. stercoralis	5(0.3)	6 (0.6)	-	11 (0.3)
Taenia Spp	4(0.2)	-	-	4 (0.1)
S mansoni	-	-	2(0.2)	2(0.05)
Protozoa				
E histolytica	462(27 5)	262(27.2)	159(15.8)	883 (24.3)
E. Coli	-	-	13(1.3)	13 (0.4)
G. lambia				
Endolimax nana	39(2.3)	65(6.8)	13(1.3)	17 (3.2)
Fasciola	-	-	-	0 (0)
Total	1073(63.9)	796(83.0)	428(42.6)	2297 (63.1)

Table 2: Prevalence of intestinal parasites by year 1988-1990

	1988	1989	1990	Total (%)
No. Examined	2066	1991	2447	6504
Helminths				
A. lumbricoides	458(22.2)	347(17.4)	520(21.3)	1325(20.4)
A duodenale	174(8.4)	74(3.7)	211(8.6)	459 (7.1)
T. trichiura	166(8.06)	99(5.0)	152(6.2)	417 (6.4)
S. stercoralis	69(3.3)	27(1.4)	93(3.8)	189 (2.9)
Taenia Spp.	3(0.1)	-	4(0.2)	7 (0.1)
S mansoni	-	-	-	0 (0)
Protozoa				
E. histolytica	339(16.4)	251(12.6)	159(15.8)	1323 (20.3)
E. Coli	10(0.5)	30(1.5)	173(7.1)	213 (3.3)
G. lambia				
Endolimax nana	46(22.2)	82(9.0)	171(8.3)	299 (4.6)
Fasciola	-	-	1(0.04)	1 (0.02)
Total	1265(61.7)	910(45.8)	2058(84.2)	4233 (65.1)

Table 3: Comparison of prevalence in the eighties and nineties

	1988-90	1996-98
No. Examined	6504	3641
Helminths		
A. lumbricoides	1325(20.4)	787(21.6)
T. trichiura	417(6.4)	33(0.9)
A. duodenale	459(7.1)	447(12.3)
S. stercoralis	189(2.9)	11(0.3)
Taenia Spp.	7(0.1)	4(0.1)
S. mansoni	0(0.0)	2(0.05)
Protozoa & Flagellates		
E. histolytica	1323(20.3)	883(24.3)
E. Coli	213(3.3)	13(0.4)
G. lambia/Edolimax nana	299(4.6)	117(3.2)
Fasciola	1(0.04)	0(0)

nineties. Table 3 compared the results obtained during the study periods. While the rate of identification of *A. lumbricoides* and *E histolytica* remains essentially unchanged there was a statistically significant reduction in the identification of *T. trichiura*, *S. stercoralis* and *Entamoeba coli* ($P < 0.001$) but a statistically significant increase in the identification of Ancylostoma species per hundred specimens ($P < 0.001$).

Discussion

Tables 1-3 summarise the results of examination of stool samples over two periods of three years each during two succeeding decades in the parasitology laboratories of the Obafemi Awolowo University Teaching Hospital Complex, Ife State Hospital Unit. The high prevalence of *A. lumbricoides* further confirms previous studies by Ayanwale et. al, though the prevalence of hookworm is substantially lower in our study 7.1% and 12.3% respectively. The dominant prevalence of *A. lumbricoides* and attendant complications have been documented by several authors working in different parts of the country [6,7,8,9]. In Ogunba's [10] report, *E. histolytica* topped the list of intestinal protozoa even though his figure of 12.9% was significantly less than our own figure of 20.3% and 24.3%. It is worthy of note that Ogunba found that 19.6% of 4021 healthy Nigerians in the same locality were shedding either trophozoites (16.4%) or cysts (3.3%) of *E. histolytica*. The higher figure recorded in the present study may be a signal to the fact that the hygiene of drinking water and food in this community has broken down as one would have expected a greater reduction in faecal water pollution 22 years after Ogunba's report. The low and irregular identification of *S. mansoni* and fasciola may indicate the low prevalence of this parasites in our communities.

The high rate of *E. histolytica* in stool samples is a cause for concern and demands a closer look at our water sources in this part of the country. There is a need also to carry out a prospective study to elucidate the clinical implication of high recovery of *E. histolytica* from faecal specimens in these communities. It will be interesting to know the sources of drinking water and the living environmental conditions of patients from whose stools parasites have been identified. Other demographic indices such as age, sex and occupation should be considered in a future study. The indiscriminate faecal disposal which has sustained environmental contamination and pollution should be of great concern for the Local Authority Health Department(s). Walking through our streets in these communities it is common place to find stools wrapped in leaves or nylon bags dropped by the side of the roads, in gutters and even on the open street. Ogunba's study, which was carried out 22 years ago documented this practice. With our inability to ensure an acceptable environmental and domiciliary hygiene, it may not be an overstatement that "Health for All by the year 2000" was a big dream and an unpleasurable joke of the century in the developing countries, particularly in Nigeria.

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