PREVALENCE OF INTESTINAL PARASITIC INFECTIONS AMONG ASIAN FEMALE HOUSE KEEPERS IN ABHA DISTRICT, SAUDI ARABIA

Abdulkarim A Al-Madani[1], and Ahmed AR Mahfouz[2]

[1]Departments of Clinical Microbiology and Parasitology; [2]Family and Community Medicine, College of Medicine King Saud University, Abha Branch, Saudi Arabia

Abstract. A group of 5,518 female Asian house keepers working in Abha District of Saudi Arabia was examined (1990 through 1992) to determine the prevalence of intestinal parasitic infections. They came from Indonesia, Sri Lanka, Philippines and Thailand. Fresh stool specimens were obtained in special containers and examined by light microscopy of wet smears in normal saline and Lugoll's iodine solution within one hour of collection. The study revealed an overall prevalence of 46.5% which was higher than that reported among the Saudi population. The common parasites found included *Trichuris trichiura* (28.8%), *Ascaris lumbricoides* (22.2%), *Hookworm* (14.9%), *Enterobius vermicularis* (0.8%), *Strongyloides stercoralis* (0.6%), *Entamoeba histolytica* (1.2%), *Hymenolepis nana* (0.2%), and *Giardia intestinalis* (0.1%). The prevalence of intestinal parasites was statistically different among various studied nationalities. The possibility of spreading such diseases throughout the community should be considered in the light of the nature of work of this group being in close contact with different family members. It is recommended that all expatriate workers be checked and treated if necessary on arrival for the first time or from vacation. This policy must be strictly monitored, particularly for female house keepers.

INTRODUCTION

Rapid economic growth in Saudi Arabia resulted in a mass influx in the number of expatriate workers. Female house keepers arrive to Abha District of Asir region, Southwestern Saudi Arabia mainly from Indonesia, Sri Lanka, Philippines, India and Thailand. Many of these workers may be infected with various types of parasites and other diseases which may present a potential health hazard.

In Saudi Arabia, awareness and efforts are directed towards control of tropical and communicable diseases. All expatriates are required to submit medical examination certificate prior to get residence permit. However, there still limited information regarding the prevalence of intestinal parasitic infections among expatriates in Abha District. The objective of the present work is to study the prevalence of intestinal parasites among Asian female house keepers coming to work in Abha District of Saudi Arabia.

MATERIALS AND METHODS

Female house keepers arriving to work in Abha district of Asir region of Saudi Arabia, during 1990 through 1992 were surveyed for intestinal parasitic infections. The sample included 5,518 female house keepers. Their age ranged from 17 to 45 years. Fresh stool specimens were obtained and analysed at the laboratory of Parasitic Diseases Department of the Asir Health Directorate. The specimens were received in small bottles with wide mouth and tightly fitted lids. Wet smears in normal saline and Lugoll's iodine solution were examined by light microscopy within one hour of collection. Periodic random examination of negative specimens were examined using the concentration formaline ether technique as quality control (Beaver and Jung, 1985). Data were collected and analysed statistically using SPSS PC + software package (Norusis, 1990). Chi square test was used as test of significance at 5% level (Rimm *et al,* 1980).

RESULTS

The overall prevalence of intestinal parasitic infections among female house keepers in Abha District was 46.5%. The parasitic infection was single in 27.6%, double in 15.5%, triple in 3.4%, and quadruple in 0.1%. Fig 1 shows that the most common parasites encountered during the study were *Trichuris trichiura, Ascaris lumbricoides,* and hookworm.

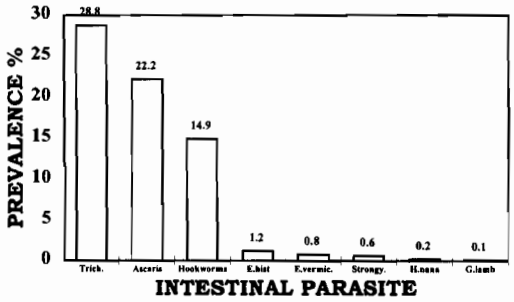

Fig 1–Prevalence of intestinal parasites among Asian female house keepers in Abha District, Saudi Arabia.

A significant ($X^2 = 58.7$, $p < 0.05$) difference in the prevalence among different nationalities was found where Indonesians ranked first (48.29%) followed by Sri Lankans (45.1%), Filipinos (37.5%), Indians (34.2%), then Thais (8.6%). Table 1 shows the prevalence of intestinal parasites among different nationalities. The commenest infections among Indonesians were *Trichuris trichiura* and *Ascaris lumbricoides*. The same picture was found among Indians and Filipinos, whereas, hookworm and *T. trichiura* were the commonest infections among Sri Lankans.

DISCUSSION

The present study showed that 46.5% of surveyed Asian female house keepers in Abha district were infected with one or more parasites. In Saudi Arabia, previous studies have shown that the prevalence of intestinal parasitic infections among the Saudi population vary from 9.3% to 26.8% (Abu Al-Saud, 1983; Al-Madani *et al,* 1989; Bolbol and Malinood, 1984; Siddiqui, 1981; Siddiqui and Edeson, 1982). The prevalence rates among expatriates residing in Saudi Arabia vary from 2.6% to 55.7% (Abel-Hafez *et al,* 1987; Abu Al-Saud, 1983; Ali *et al,* 1992; Khan *et al,* 1987). The discovered high prevalence in the present study agrees with previous reports from their home countries (Carney *et al,* 1981; Egger *et al,* 1990; Kasuya *et al,* 1989; Mangali *et al,* 1993; Sonderegger *et al,* 1985; Subbannayya *et al,* 1989).

The intestinal pathogenic helminths were the most prevalent infections encountered in the present study. The reasons for high helminthic parasitic infection among expatriates appears to be related to sociocultural, economical, and environmental factors that influence parasite survival and transmission in their home countries. The combination of such factors such as irregular utilization of sanitary toilets for defection by adult and children, habitual non-use of footwear, a general poor nutritional status and health of the people plus the heavy rain may account for the high risk of infection and reinfection particularly with soil-transmitted helminths like *Ascaris, Trichuris,* hookworm, and *Strongyloides* (Egger *et al,* 1990; Elkins, 1984; Mangali, 1993; WHO 1964, 1987).

On the other hand, the prevalence of intestinal pathogenic protozoans among Asian female house

Table 1

Prevalence (per hundred) of intestinal parasitic infections among different nationalities of Asian female house keepers in Abha District, Saudi Arabia.

Parasite	Prevalence per				
	Indonesian	Sri Lankan	Indian	Filipino	Thai
Trichuris trichiura	30.4	23.1	15.8	24.8	1.7
Ascaris lumbricoides	23.7	15.4	17.1	18.4	1.7
Hookworm	15.1	23.7	9.2	5.8	0.0
Enterobius vermicularis	0.7	1.9	0.0	0.7	1.7
Strongyloides	0.5	1.5	2.6	0.4	3.4
Hymenolepis nana	0.2	0.0	0.0	0.0	0.0
Entamoeba histolytica	1.2	1.9	1.3	1.1	0.0
Giardia lamblia	0.1	0.0	0.0	0.0	0.0

keeper was remarkably low. The low prevalence of protozoal infection agrees with previous results on expatriates in Saudi Arabia (Abdel-Hafez *et al,* 1987; Abu Al-Saud, 1983; Ali *et al,* 1992; Khan *et al,* 1987).

In conclusion, this study showed that the parasitic infections among Asian female house keepers represented a major health problem. The possibility of speading such diseases throughout the community should be considered in the light of the nature of work of this group being in close contact with different family members.

It is recommended that all expatriate workers be checked and treated if necessary on arrival in Saudi Arabia and re-examined upon returning from their annual home leave vacation. This policy must be strictly monitored, particularly for female house keepers.

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