

A Study of Helminthiasis in Pregnancy

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Abstract: WHO estimate demonstrates that geohelminthiasis accounts for more than 40% of the disease load amongst all tropical diseases. Helminthic infections are also common among pregnant women in low income countries with poor water supply and poor environmental sanitation. Helminthiasis can lead to adverse pregnancy outcome in terms of anemia, intrauterine growth restriction, and prematurity and low birth weight. This study was undertaken to study the prevalence and type of worm infestation in pregnancy. This prospective cross sectional hospital based study is conducted at a tertiary health care center in north eastern India. Study included 100 asymptomatic pregnant women attending antenatal OPD whose parasitic examination of stool was done. Helminthiasis was found in 17% of the women studied. 15% infected women had single helminthic infestation and 2% women had double helminthic infestation. *Ascaris lumbricoides* was the most common helminth detected (76.5%). This study reveals that there is a high prevalence of helminthic infestation in pregnant women. And in such a situation in order to decrease the rate of anemia and malnutrition attributed to worm infestation deworming of pregnant women after first trimester can be considered besides health education.

Keywords: Helminthiasis, Ascariasis, Hookworm infection, Trichuriasis

INTRODUCTION

Helminths are parasitic worms responsible for morbidity and mortality in human as well as animals. Soil-transmitted nematodes namely roundworm (*Ascaris lumbricoides*), whipworm (*Trichuris trichiura*) and hookworms (*Necator americanus*/*Ancylostoma duodenale*), tapeworms such as *Taenia* spp and *Hymenolepis* spp. and flukes are the frequently found helminths [1].

WHO estimate demonstrates that geohelminthiasis accounts for more than 40% of the disease load amongst all tropical diseases. In 2006, it was projected that over a billion people were infected with one or more species of soil-transmitted helminth [2] and many of them are women of reproductive age and children. Higher geohelminthic infection rate in the low income countries is credited to poverty, low literacy rate, poor hygiene, lack of proper sanitation and safe drinking water, malnutrition and hot and humid climate. Helminthic infection is accountable for poor nutritional status, anaemia and impaired growth. Most of the time the affected individual is asymptomatic but in case of heavy infection may have poor appetite, weight loss and pain in abdomen.

Helminthic infections are also common among pregnant women in low income countries with poor water supply and poor environmental sanitation [3].

The prevalence of hookworm infestation tends to increase with age [4]. Hookworm alone infects approximately 44 million antenatal women in endemic areas [5]. Helminthiasis can lead to adverse pregnancy outcome in terms of anemia, intrauterine growth restriction, and prematurity and low birth weight.

Pregnant women with anemia, commonly caused in developing countries by helminthiasis, are three and a half times more probable to die during childbirth than women who are not anemic [6]. Dependable information is needed about the prevalence in a particular area in order to provide guidance for making decisions regarding prophylaxis and treatment of infected pregnant cases. This study was undertaken to determine prevalence of geohelminthiasis in pregnant women in north eastern population in India which mainly consists of tribal population and thus to add epidemiological data on geohelminthiasis.

MATERIAL and METHOD

This prospective cross sectional hospital based study was conducted over a period of one year in the Department of Obstetrics and Gynaecology of a tertiary care institute in North Eastern India to determine the prevalence of helminthiasis in pregnancy. Study included 100 pregnant women attending antenatal outpatient department selected consecutively. Asymptomatic pregnant woman were included in the study group after informed consent. Women refusing to give consent and those who received prior treatment with anthelmintic were excluded from study. After consent detailed history regarding associated risk factors was taken and physical examination was done. Stool sample sent for examination. The type of parasite detected was then recorded along with other sociodemographic information.

Statistical Analysis

Mean ± SD was calculated using descriptive statistics.

RESULT

A total of one hundred women were included in the study. Mean age of the study population was 26±4.74 years, mean parity was 1.19±1.62 and mean gestational age was 19±8.75 weeks.(Table 1) Majority of the women belonged to low and lower medium socioeconomic status and were not very keen and aware about hygienic practice and 33% of them were illiterate.(Table 2)The prevalence of helminthiasis was found to be 17%, majority (15) women were having single type of worm infestation and in only 2 women two types of worm infestation ascariasis and trichuriasis trichuria was present. Ascaris lumbricoides was the most prevalent (76.5%) followed by hookworm (17.7%) and trichuris trichiura (17.7%)(Chart 1)

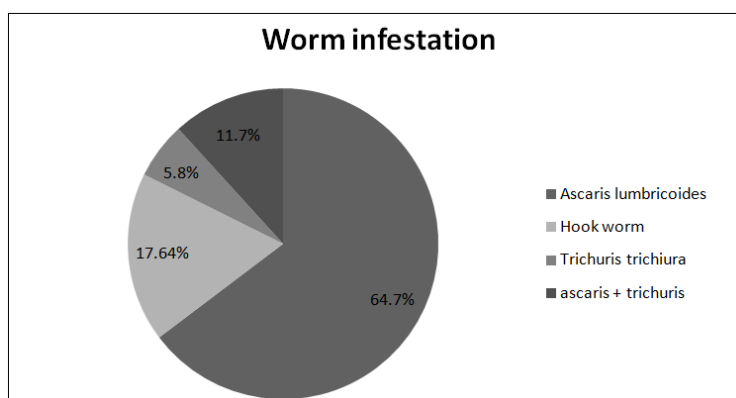


Chart-1: Distribution of Various Helminths

Table-1:-Clinical Variable of subjects

Baseline characteristics	Values
Mean age (in years)	26 ± 4.74
Mean parity	1.19 ± 1.62
Mean GA (in weeks)	19 ± 8.75, minimum -5, maximum -38

Table-2: Sociodemographic Variable of Subjects

Variables	N = 100	Percentage
Residence	Urban	69 (69%)
	Rural	31 (31%)
Education of women	Illiterates	33 (33%)
	Upto high school	38 (38%)
	Above high school	29 (29%)
Occupation of women	Home maker	75(75%)
	Student	4 (4%)
	Working	21 (21%)
Socioeconomic status (By Kuppuswamy's scale)	I	21
	II	40
	III	19
	IV	11
	V	09

DISCUSSION

Soil-transmitted helminthiasis is a significant community health problem, especially in developing countries of both Africa and Asia [7]. This study also demonstrated a high prevalence (17%) of worm infestation among pregnant women in north eastern part of India. Our findings are almost similar (19.65%, 23.6%) to other studies [8,9]. Though the prevalence may be underestimated due to small sample size.

In the present study ascariasis is the most prevalent infestation accounting for 76.5% of the infected women. One of the large studies conducted on 1042 pregnant women in highly endemic areas demonstrated overall prevalence rate of 47.22% for hookworm, 82.25% for trichuriasis, 63.92% for ascariasis. Most women in that study had poly parasitic infestation unlike our study [10]. Another study from Nepal also demonstrated ascariasis as the most common infestation [11].

Two studies from western Kenya reported very high prevalence of helminthiasis in pregnant women but the most common infestation was by hook worm [12,13]. Ascariasis is the most common helminthiasis in various studies including present one. About 25% of the world population is infested with *ascaris lumbricoides*.

There are many reasons to explain it. *Ascaris* ova are also spread by coprophilous animals and can be carried to areas away from defecation sites [14] their eggs resist drying and can survive for long periods in soil. This explains why *ascaris* infection is more common throughout the world as compare to other helminthiasis. Being coated with mucopolysaccharides *ascaris* eggs powerfully adheres to different surfaces [15].

In the present study three types of helminthic species are found. It is unlike other studies where mostly one or two types of species were found. This shows differences in the distribution of helminthic species in different geographical areas and the differences in various diagnostic tests [9].

Recently it has also been documented that pregnancy has been associated with an increased prevalence of ascariasis and trichuriasis as compared to non-pregnant women [16]. High Prevalence of geohelminthiasis in pregnant women may be due to the soil eating practice in many developing countries.

WHO and UNICEF [17] recommended deworming in pregnant women in second and third trimester if prevalence rate in the area is >20%. Finding of this study indicates the importance to stress upon the need to rigorously follow the WHO guidelines in pregnant women in highly endemic areas to decrease

the rate of anemia and malnutrition attributed to worm infestation. In areas where prevalence is lower than <20% routine stool examination can be incorporated in antenatal investigation to detect parasitic infestation and positive cases can be treated. To reduce the prevalence mass awareness about good hygiene practice, higher education level and availability of safe water and sanitation facilities are some long term measures to be followed.

Weakness of our study lies in the fact that it is a hospital based study with a small sample size. To know the exact prevalence in the community further community based studies are urgently required.

CONCLUSION

In this study a high prevalence of helminthic infestation in pregnant women has been observed. And in such a setting in order to decrease the rate of anemia and malnutrition attributed to worm infestation deworming of pregnant women after first trimester can be considered besides health education.

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