

Study of intestinal parasites in food handlers in a tertiary care centre in Kanchipuram

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Abstract

Introduction: Food handlers with poor hygiene working in food establishment areas have been reported as a potential source of helminths & protozoans all over the world. Individuals with symptoms of parasitic infections are dangerous to the society as they transmit the infection without giving less attention to their hygiene and transmission of infection to others.² Hence we conducted this present study to know the prevalence of parasitic infection among food handlers in our hospital.

Materials and Methods: All food handlers who were employed in various food establishments were included in our study. Three faecal samples on alternate day were collected and transported to laboratory. Microscopic examination was done using normal saline and lugol's iodine. All the positive food handlers were subjected to health education and treatment given to them and repeat stool sample was collected after 3 weeks.

Result: Stool specimens collected from 96 food handlers. A total of 32 (33.33%) of workers were positive for parasitic infection. Among the 32 positive food handlers 20 (62.5%) were females and 12 (37.5%) were males. Among the food handlers, entamoeba histolytica 16 (50.1%) is the common parasite isolated, and more common in food providers followed by Ascaris lumbricoides infection 7 (21.87%) in helpers in food services. Among the 32 positive food handlers 1 (3.12%) patient had mixed infection. No Acid fast parasites were detected among our food handlers. All the infected persons were treated on with a course of antihelminthics & were given health education regarding hand washing, use of PPE (Personal Protective equipments) and personal hygiene. Repeat stool sample was collected and screening was done after 3 weeks to rule out parasites and all the samples showed negative.

Conclusion: Effective training and education of personal habits like hand washing, wearing of PPE and regular screening of parasites should be made mandatory in all hospital to control the intestinal parasitic infection.

Keywords: Intestinal parasites, Food, Handlers, Hand washing, Personal hygiene.

Introduction

Intestinal parasite infections still remains as an important problem in most of the regions of the world. It is estimated that 450 million people fall ill every year particularly children. Food handlers can be a potential source of intestinal parasites due to lack of poor hygiene.¹ Improper handling of food and lack of regular hand washing lead to spread of pathogens.

Individuals with symptoms of parasitic infections are dangerous to the society as they transmit the infection without giving less attention for the transmission of infection to others.² Food handlers with poor hygiene working in food services and involved in other catering services have been reported as a potential source of helminths & protozoans all over the world. These parasite infections pose a real threat to patients particularly the immune compromised patients.³

The risk of food getting contaminated depends largely on the health status of food handlers, their personal hygiene, knowledge in practice of food hygiene.⁴ Most of the medically important intestinal parasites are transmitted by ingestion of food and water contaminated with the infective stages of parasites.⁵ Giardialamblia, entamoeba histolytica and ascaris lumbricoides are most common parasitic infections affecting world wide.⁶

Hence we conducted this present study to know the prevalence of parasitic infection among food handlers in our hospital, presently working in various food establishment areas our hospital.

The food handlers who were positive for parasites, health education given to them regarding hygiene and treatment given to them as this is the basis of preventing transmission of parasites to another.

Materials and Methods

The present study was conducted in our hospital after the approval of institutional ethics committee. Total of 96 food handlers who were employed in various food establishments were included. Food handlers who were not on any treatment for intestinal ailment for 3 months were included in the study.⁷

After getting an informed consent from the health care workers, a structured questionnaire was used to collect the relevant information like age, sex, education level & personal hygiene details regarding cleanliness of hair, nose, nails, use of gloves, head cap, hand washing practises and history of drug intake, steroids were taken.⁸

Three stool specimens were collected from food handlers in a wide mouthed container. The faecal samples on alternate day, were collected and transported to laboratory within 1 hr as per standard

protocol.⁹ Macroscopic examination done with naked eyes to see the color, consistency and presence of worms.¹⁰ Microscopic examination was done using normal saline and Lugol's iodine. Formal ether concentration of the stool done to detect the ova, cyst and larva.¹¹ Acid fast staining done to detect acid fast parasites as per standard protocol.¹² All the infected food handlers were subjected to health education and treatment given to them and repeat stool sample was collected after 3 weeks.¹³

Results

Stool specimens were collected from 96 food handlers. A total of 32 (33.33%) of food handlers were positive for parasitic infection.

Among the 32 positive food handlers 20 (62.5%) were females and 12 (37.5%) were males.

Table 1: Showing the distribution parasites in food handlers n=32

Food handlers	Entamoeba histolytica		Giardia lamblia		Ascaris lumbricoides		Trichuris trichura		Anchylostoma duodenale			
	n	%	n	%	n	%	n	%	n	%		
Cook	5	15.62	3	9.37	-	-	2	6.25	-	-	-	-
Food Providers/ servers	18	56.25	11	34.37	3	9.37	1	3.12	1	3.12	1	3.12
Helpers	9	28.12	2	6.25	1	3.12	4	12.51	1	3.12	-	-
Total	32	100	16	50	4	12.51	7	21.87	2	6.25	1	3.12

Among the 32 food handlers, entamoeba histolytica 6(50.1%) is the common parasite isolated and more common in food providers followed by Ascaris lumbricoides infection 7 (21.87%) in helpers in food services.

Among the 32 positive food handlers 1 (3.12%) patient had mixed infection. No acid fast parasites were detected among our food handlers.

Table 2: Showing the demographic pattern in food handlers

Parameters	Positive n = 32		Negative n = 64	
	N	%	N	%
Male	14	43.75	38	59.37
Female	18	56.25	24	37.5
Literate	21	65.62	53	82.81
Illiterate	12	37.5	11	17.18
Personal hygiene				
Knowledge about hygiene	22	68.75	60	93.75
Use of apron while food handling	28	87.5	62	96.87
Use of glove	26	81.25	55	85.93
Regular nail trimming	29	90.62	58	90.62
Habit of nail biting	3	9.37	1	1.56
Use of haircap	11	34.37	22	34.37
Practises hand washing regularly	21	65.62	60	93.75
Knowledge of hand washing	21	65.62	62	96.87

From the above table more than 30% of infected food handlers have a poor hygiene and unaware of hand washing & personal hygiene. All the infected persons were treated on with a course of antihelminthics & were given health education regarding hand washing, use of PPE (Personal protective equipment's) and personal hygiene. Repeat stool sample was collected and screening was done after 3 weeks to rule out parasites and all the samples showed negative.

Discussion

In our present study, total of 96 food handlers were screened, 32 (33.33%) food handlers were positive for parasitic infection. The prevalence of intestinal parasites were 33.3% which is similar to study done by mama et al¹⁴ who also isolated 31.3% of intestinal parasites but lower than Ramakrishna et al who isolated 41.1%.¹⁵ In our study entamoeba histolytica is the most common isolate which was similar to of intestinal

parasites in their study done by Talaker et al,¹⁶ Rama Krishna et al¹⁵ have also isolated entamoeba histolytica as common isolate. In our study entamoeba histolytica was isolated from 16 (50.1%) health care worker which is concordant with the study done by shihari et al who isolated 65.1% of entamoeba histolytica in their study.¹⁷ Variation in prevalence & frequency of parasites may be due to variable food habits, culture & geographic condition.

Among the 32 positive food handlers 20 (62.5%) were males and this was similar to study done by waseem et al.¹⁸ Who also reported more positivity among males. Among the positive food handlers 65.2% who doesn't have the practise of hand washing and unaware of hand hygiene were infected with one or more parasites. This is concordant with Tamritfera et al¹⁹ who reported 51.5% of positivity in poor hand washing people and much higher than Mudey et al who reported 49.38%²⁰ in their study. Among food handler 1 (3.12%) had mixed infection in our study which was similar finding reported by hindi et al,²¹ who isolated 1 (4.31%) mixed infection their study.

Examination of finger nails of food handlers is one way of indicating the contamination of food.²² Our present study also reports that poor hygiene of finger nails is one of cause for the positivity in food handlers.

Among the 32 positive food handlers 22 (68.75%) have good hygiene practises which is lower than Mohan V, Raj K who observed a good personal hygiene of 72.4% in their study.²³ The high prevalence of parasites among food providers and cooks were attributed to high prevalence of unhygienic habits and poor hygiene. In our study the food providers were found to be infected maximum 18 (56.2%) and similar results were also shown by study done by Arun gosh et al who reported maximum infectivity among food providers 29.3% which is much lower than our study.²⁴

All the 96 food handlers were health educated about hygiene practises, ways of food handling and the 32 positive food handlers were treated with antihelminthic agents. Metranidazole 400 mg bd for 5 days & albendazole 400 mg stat. After 3 weeks a repeat stool examinations done to all health care workers & were found to be nil parasites.

This screening & effective health education of the food handlers were done as a routine for once in 3 months and were monitored for hygiene practices. 96 handlers were periodically screened & none were positive for parasitic infection.

Conclusion

Effective training, education on personal hygiene, regular screening and surveillance will help to control parasite infections. The absence of intestinal parasites reveals that standard of good sanitation, good practises like hand washing, PPE, are very effective. Effective training and education of personal habits like hand

washing, wearing of PPE should be made mandatory in all hospital to control the intestinal parasite infection.

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