

Epidemiological study of the intestinal parasite among children in AL-kut city.

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Abstract

Six hundred fecal samples were collected from children in Al-kut city between January 2015 to March 2016 to investigate the prevalence of intestinal parasites and the correlation of these results with many factors).

:all fecal samples were examined by three different diagnostic method which include(direct smear method by wet preparation technique , concentration by sedimentation method and iodine ,acid fast staining method for parasites detection and identification.

365 (61%) percentage from 600 patients were found to parasites harbor stages of infective parasites , Four species of infective parasites were identified from individuals in this study These were: *Entamoeba histolytica* (62%), *Giardia lamblia*(22%),*Entamoeba coil*(10%) and *Cryptosporidium parvium*(6%),The highest percentage of different parasitic infections that associated with youngest age, female, rural regions, in comparison with oldest age, male and urban regions respectively.

The prevalence of intestinal parasitic infections among children was high and the rate of infection with *Entamoeba histolytica* and *Giardia lamblia* which more predominate the total positive.

Keywords: Intestinal parasites; infections; Epidemiology, rural, concentration.

Introduction

The parasitic contaminations in individuals see as a noteworthy issue on the planet particularly in the groups whom experiencing poor sanitation and low individual cleanliness, for example, elementary schools understudies and provincial communities(1). indeed, one fourth of the known human irresistible infections are brought on by the helminthes/protozoan group(2). WHO reported around 3.5 billion individuals are influenced, and 450 million are sick as an aftereffect of these contaminations, the lion's share being children(3). Pathogenic intestinal parasites have for some time been viewed as an imperative wellbeing because of their association with youth under-sustenance, iron deficiency pallor, lessened physical wellness, subjective execution and mental development(4).Geographical conveyance of intestinal parasites is impacted by the necessities of appropriate hosts being available in adequate numbers, and additionally the requirement for positive outside ecological conditions like creatures, creepy crawlies, soil, watering system, sewage, precipitation, stickiness, and temperature(5) The predominance of intestinal parasitic contamination of human might be identified with a few human elements, for example, age, sex, occupation, strategies for poop, and habitats.(6). Intestinal protozoa and intestinal helminthes cause numerous manifestations or clutters, for example, looseness of the bowels, spewing, queasiness, stomach torment, lack of healthy sustenance, loss of weight, malabsorption, intestinal deterrent, ulcers of intestinal tract, colon unsettling influences, rectal prolapse, an infected appendix, weakness, pruritis, urticaria, skin inflammation, amoebic hepatitis, amoebic colitis, amoebic diarrhea, vaginitis, salpingitis, cervicitis, and cystitis (7). The most widely recognized gateway of passage for intestinal parasites to human host is through indigestion of food or water contaminated with viable cysts or trophozoites of *E.histolytica* or *G.lamblia* may bring about disease with these protozoa(8). The great standard test for diagnosing intestinal parasites is stool examination(8). There are numerous techniques for amassing intestinal parasites in a stool specimen(9).the point of this study is to have some data about the predominance of gastro-intestinal parasites among al-kut governorate populations and to investigate the different epidemiological components that are gotten through various methods for fecal examination.

MATERIALS AND METHODS

600fecal specimen were gathered from patients of both genders and diverse ages with clinically affirmed intestinal disarranges from al-zahraa Teaching Hospital and private laboratories at various area of AL-Kut city, from January 2015 to March 2016.

Stool Samples Collection

Clean plastic containers were utilized for feces tests gathering keeping away from presence of urine or whatever other substances that may prompt false examination.

Stool Samples Examinations:

Macroscopically Examination

It was performed by watching grossly the consistency of stool samples, presence of helminthes, blood, bodily fluid and different substances.

Microscopically Examination by Direct methods:

From every stool tests we done focus method , About 1 gram of every stool test was added to 5 ml of typical saline (0.9 gram/dl) in a test tube and ,then the test tube, was centrifuged at 1500 rpm for around 3 minutes. The supernatant was disposed of and the silt was then examined, from every stool test two smears were inspected by get ready two clean dry magnifying lens slides, each with lugols iodine arrangements and acid fast stain .By utilizing clean fine wood stick, the stool example was touched unconcerned locales, particularly where dashes of blood or discharge are noticed, then blended altogether with every drop of lugols iodine arrangements and acid fast stain on the readied 2 slides, then every 50% of the slides was secured by cover slip. The smear was analyzed completely under the low (x10) power and high (x40) force of the magnifying lens (10).

Statistical analysis

Data were entered to computer system and analyzed using SPSS program for frequencies, cross-tabulation and chi-square test. P-value under 0.05 was considered a significant (11).

RESULTS

from 600 stool samples of patients who clinically suffered from intestinal disorders were examined. Out of this total numbers, 365 patients (61%) were associated with different parasitic infections, In this study the highest rate of infection was with *Entamoeba histolytica* which predominate the total positive samples for protozoa, in which the rate of infection was (62%) followed by *Giardia lamblia* (22%), *Entamoeba coil*(10%) , and the lowest rates of infection were for *Cryptosporidium parvium* (6%) Table(1).

Table (1): Distribution of different species of intestinal parasitic protozoan

intestinal parasitic protozoan	Number of infections	percentage
<i>Entamoeba histolytica</i>	225	62%
<i>Giardia lamblia</i>	80	22%
<i>Entamoeba coil</i>	37	10%
<i>Cryptosporidium parvium</i>	23	6%
Total	365	100%

Table (2): Distribution of different species of intestinal parasitic protozoan according to age groups.

According to the age distribution shows that the prevalence of positive individuals is decreasing with age, The highest rate (49%) of this species was in the age group(1-3)years followed by (30%) rate in the age group (4-6), and the lowest rate (10%) was in the age group(7-9).

Age groups	<i>Entamoeba histolytica</i>	<i>Giardia lamblia</i>	<i>E.coli</i>	<i>Cryptosporidium parvium</i>	total	Total%
1-3	105	40	15	20	180	49%
4-6	75	25	7	3	110	30%
7-9	30	5	-	-	35	10%
10-12	15	10	15	-	40	11%
Total	225	80	37	23	365	
Total%	62%	22%	10%	6%		100%

Table (3): Distribution of different species of intestinal parasitic protozoan according to residency.

According to residency the highest percentage of different parasitic infections that associated with diarrhea was in rural regions 228 (62%) in comparison with urban prevalence with regards to age.

Residency	Number of infections	percentage
Rural	228	62%
Urban	137	38%

Table (4): Distribution of different species of intestinal parasitic protozoan according to sex.

the sex distribution, from 365 patients 151(41%) who are positive are males and 214 patients (59%) are females.

Sex	Number of infections	percentage
Male	151	41%
Female	214	59%

Table 5): Distribution of different species of intestinal parasitic protozoan according to drinking water source in houses.

The relationship between intestinal parasitic infection and drinking water source in houses at wasit province in table (5) found the highest percentage of different parasitic infections that used RO(79.45%) and the lowest rate of infection with patients that used Tap Water20.55%.

Drinking water source	Number of infections	percentage
Tap Water	75	20.55%
Reverse Osmosis Water(RO)	290	79.45%
Total	365	100%

Table (6): Distribution of different species of intestinal parasitic protozoan according to Sewer system in houses.

This table show the highest percentage of different parasitic infections associated with cesspool system(58.9%) and the lowest rate of infection associated with sewers system(41.1%).

Sewer system	Infected no.	Infection percentage%
Sewers	150	41.1%
Cesspool	215	58.9%
Total	365	100%

Discussion

In this study the generally speaking of gastrointestinal parasitic protozoan disease was in high rate (61%) ,and the types of these parasites which were analyzed Entamoeba histolytica (62%) G.lambliia(22%), Entamoeba coli (10%) and Cryptosporidium parvium(6%),these outcomes were concurrence with the consequences of different scientists (22,23), the high rates of these contaminations because of poor sanitation ,poor general wellbeing works on expanding of vectors and hunger status notwithstanding the impact of the financial blockage in Iraq for long stretch .there was significant differences ($p < 0.05$) in the commonness of intestinal parasites among various sex, ages and occupations persons in Wasit province.

the most noteworthy rate of disease from aggregate number examples for the age group (1-3)years was (49%) and this concurrence with the study directed by (11,12,22), This might be because of the most youthful age gathering are more powerless to water-borne and nourishment borne contaminations, in light of the fact that their playing and cleanliness rehearses incline them to contamination than more seasoned age group; all the more along these lines, their insusceptible frameworks are not completely created and their level of wellbeing instruction is not adequate to recognize the threats of pollution, This is in concurrence with (28,29,24), This may be due to the fact that the intestinal infection mainly responsible for diarrhea especially in children rather than adults(16,18,25).

The outcomes demonstrated that the often of the intestinal parasitic disease in rural regions was (62%) higher than the predominance rate of the intestinal parasitic contamination in urban regions (38%),this might be ascribed to the propensity for eating unwashed vegetables (14),and another essential components which influence is the nearness of asymptomatic patients who can be viewed as the fundamental wellspring of disease through constantly discharging the growths stages with their stool (27),generally the danger of disease was most astounding in regions of neediness and in settings with poor sanitation where obstructions between human defecation ,sustenance and water are deficient (28). In this study the rate of disease was higher in females than in guys this concurrence with the study directed by (11),and conflict with (8), the reason for this appropriation might be ascribed to the females more contact with natural conditions than males(8,11,26). In late study Regarding to the drinking water source in houses the rate of disease in gathering that drinking faucet water lower than gathering drinking RO water , This could be because of the infective phases of these intestinal protozoan parasites (cyst or trophozoite) transmitted through tainted nourishment ,water, hand to mouth contamination (18,26), these pimples are imperviousness to substance disinfectant, for example, chlorine (16,18),on the other hand the rate of contamination in patients that utilized RO water might be credited to the absence of complete cleansing for holders and Water channel frameworks are not experience to wellbeing control .

Then again comes about uncovered an expanded rate of intestinal protozoan parasitic disease in places of patients that nonappearance of sewer framework in examination with places of patients that nearness this framework, the conceivable clarification of this outcome is the transmission of intestinal protozoan parasites may come about because of drinking sullied water and these contaminations are regular in many countries especially in groups and institutional gatherings (15,16) ,flies and cockroach serve as vector in intestinal parasitic contaminations (18,26).

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