

# Prevalence of intestinal parasites (*Entamoeba* species and *giardia lamblia*) in duhok and erbil cities, Northern Iraq

## Abstract

**Background:** Intestinal protozoan parasites concenter as important parasite that infect human, and there are high infection rate in human in word. This epidemiological study carried out in Hivi pediatric hospital and central lab. In Duhok and Erbil cities/northern Iraq. The sample collection was from the June to the August 2016 (3 months) and about 77 stools samples were collected from diarrheal patient. 47 samples in Duhok city and 35 samples in Erbil city.

**Methods:** By microscopic fecal examination all stools samples were examined by direct wet smear and iodine staining.

**Results:** *Entamoeba* species and *Giardia lamblia* were found in stools sample of diarrheal patients. *Entamoeba* species parasite was higher than *Giardia lamblia* in both Duhok and Erbil cities. In this study the rate of *Entamoeba* species and *Giardia lamblia* in Duhok city was 11(26.1%) and 4(9.5%) respectively, and in Erbil city the rate of infection by *Entamoeba* species and *Giardia lamblia* was 8(22.8%) and 2(5.7%) respectively.

**Conclusion:** The present epidemiological study show that the prevalence of intestinal parasites special *Entamoeba* species parasite in Duhok and Erbil cities are still high and it's require good strategies and plans to prevent distribution of these parasites.

**Keywords:** intestinal parasites, *entamoeba specie*, *giardia lamblia*, prevalence

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## Introduction

There is high prevalence of intestinal parasite throughout the world; it's more than three billion people which are infected with these parasites.<sup>1</sup> There are direct relation between infection with intestinal parasites and socioeconomic status. In area with low hygienic condition there are more infection with intestinal parasite and many studies reports these parasites in low socioeconomic status area.<sup>2-6</sup> For control of these parasites it's require the good planning and good studies for determination of epidemiological researches and data about different area. There are many risk factors that directly effect on people to infect parasite in many area, for prevent process there are special methods and plans that it should be used. The aim of this study about intestinal parasites is that to determine and know the rate of infection by parasite in Duhok and Erbil cities/ North Iraq, to obtain and find the infection data and percentage to use in future studies as epidemiological data.

## Materials and methods

### Sample collection

The sample collection was in Duhok Hivi pediatric hospital and Erbil central Laboratory from the June to the August 2016 (3 months). About 77 stools samples were collected from diarrheal patient and the stool samples were collected in a special bottle and transported to laboratory in College of Science/ University of Duhok and were stored in deep freezer.

### Microscopic examination of stools samples

In laboratory all samples were processed by direct wet smear

and iodine staining and examined via microscopy for the presence of *Entamoeba* species and the results were write in Table 1.

## Results

By microscopic fecal examination 2 intestinal parasite were found in stools sample of diarrheal patients, which the more prevalent parasite was *Entamoeba* species parasite and the second was *Giardia lamblia*. In these diarrheal patients stools only protozoan parasite were found by microscopic examination. Prevalence of protozoan intestinal parasites in Duhok and Erbil city are shown in Table 1.

## Discussion

One of the important health problem in human are parasitic infection, the prevalence rates are different according to life level, behavior style and hygienic level. In this study were shown 26.1% and 22.8% of infection in patients with *Entamoeba* species, in both Duhok and Erbil cities respectively. In Duhok city was shown 11 infected people from 42 examined, and in Erbil city was shown 8 infected people from 35 examined patients. These data shown that the prevalence percentage in Duhok city is higher than Erbil city in *Entamoeba* species Parasite. In Table 1, we can see the prevalence of *Giardia lamblia* in both Duhok and Erbil cities, which the rates of infection were shown 9.5% in Duhok city and 5.7% in Erbil city. According to this study we can show that the *Giardia lamblia* infection in Duhok city was higher than Erbil city, but because of low number of collected sample in Erbil than Duhok, this different is not more significant.

Also in this study we can see the infection with both *Entamoeba* species and *Giardia lamblia* parasite in one infected person in Duhok

city. When we compare this study with other studies in Erbil and Sulaimaniye cities of Iraq, we can see high differences in results percentage, for example amoebic infection in Erbil city/ Iraq was reported about 19% by.<sup>7,8</sup> Also the prevalence of amoebic dysentery among children in Pediatric Hospital of Sulaimaniye- Iraq was (39%).<sup>1</sup> But Hussein, 2010 reported 10.15% of infection by *Entamoeba* species in epidemiological study in Duhok city, these results are similar with our finding in this study approximately. In Iraq country several studies reports the prevalence of intestinal parasite in different cities, special protozoan parasites.<sup>5</sup>

When we compare this study with other studies we can see the different in parasite species percentage in different area.<sup>4</sup> According to,<sup>9</sup> in Turkey, which obtain different infection rate with *Entamoeba histolytica*, they found that the rate of infection was 11.6% in the immigrant group people (IG) and 5.9% in the resident group people (RG), these finding are similar to our finding in *Entamoeba* parasite approximately. But.<sup>4</sup> in Iran, reported high prevalence of *Giardia lamblia* parasite in their study, when we compare with this study data, we can see different data in *Giardia lamblia* parasite.<sup>4</sup>

### Conflicts of interest

There is no conflict of interest.

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