Summary

Nosocomial infections are those occur as a result of treatment in a hospital or a healthcare service unit, but secondary to the patient's original condition. Infections are considered nosocomial if they first appear 48 hours or more after hospital admission or within 30 days after discharge. Nosocomial**,** comes from the Greeck word nosokomeion (νοσοκομείον) meaning hospital (nosos =disease, komeo = to take care of)**.**

Many of the same risk factors will put both humans and animals in the path of infection. Nosocomial infections often occur in patients who are already ill, elderly or malnourished. Other risk factors are: Extremes of age, young and old, Chronic debilitating disease, hospitalization while on steroids therapy, chemotherapy (immunosuppressive), invasive diagnostic or medical procedures, prolonged hospital stay and lengthy surgical procedures.

Nosocomial parasitic infections include: *G.lamblia, Toxoplasmosis, E.histolytica, C. parvum* and ectoparasite as *Pediculus, Sarcoptes scabei*. The patient may actually have acquired the parasite infection many years before hospitalization which become latent infection that reactivated when the patient become debilitated when the immune system involved. Inter-action between food services personnel and patients and employees is important**.**

Thorough hand washing and/or use of alcohol rubs by all medical personnel before each patient contact is one of the most effective ways to combat nosocomial infections.

G.lamblia is a widely distributed flagellated protozoan parasite that inhabits the small intestine. It is the most prominent human

protozoal enteropathogen with a prevalence rate that varies from 2% to 5% in the industrialized world and 20% to 30% in the developing world. Giardiasis is more prevalent in infancy and children.

Giardiasis is recognized as a disease of travelers worldwide, mainly in the developing world, persons at risk include close contacts of infected persons or those who have contact with infected animals. *G.lamblia* particularly common among children participating in group activities and is a special threat to immunosuppressed children

The parasite exists in two morphological forms; as a trophozoite which is responsible for the production of diarrhea and malabsorption, and as a cyst which is able to exist outside the host in a suitable environment and is the form of the parasite by which giardiasis is usually transmitted.

The clinical effects of *G.lamblia* infection range from an asymptomatic carrier state to sever prolonged diarrhea more than 10 days, loss of appetite and weight, vomiting and flatulence. The symptoms differ from patient to another according to duration of infection and host and parasite factors.

Diagnosis of giardiasis is largely dependent on microscopic demonstration of the parasite in the stool, which yields many false negatives due to intermittent excretion of *G.lamblia*. Other reliable methods of diagnosis are duodenal aspiration and intestinal biopsy but they are invasive and uncomfortable techniques. So some other diagnostic techniques were introduced and were studied regarding to their value in diagnosis but these studies were not fulfilled up till now.

The identification of *G.lamblia* antigens has been difficult since investigators have used different isolates of *G.lamblia*, different antibody reagents and variety of assays in studies of the immune response to

G.lamblia. By using ELISA coproantigen it has been possible to identify *G.lamblia* specific fecal antigens with potential diagnostic application.

The aim of this work was to assess the magnitude of giardiasis as nosocomial infection among children, to detect the source of this infection, to use Enzyme Linked Immuno - Sorbant assay (ELISA) coproantigen as diagnostic technique for *Giardia* and to evaluate the applicability of ELISA corpoantigen as a technique for detection of *Giardia* in stool specimens.

This study was conducted on 70 child admitted to the inpatients clinics of Benha University Hospital and from Benha Children Specialized Hospital, 18 contact and hospital workers, In addition to 36 water samples.

Group I: (70 children):

The children were subdivided into two groups:

1- **immunocompetant group:** included 35 child from the following departments cardiology , chest , orthopedic, pediatrics and hepatology. Some of them develop diarrhea after admission.

2- **immunocompromized group:** included 35 child (cancer patients under chemotherapy or radiotherapy , uraemic patients undergoing dialysis, malnourished children and children on prolonged steroid therapy**)**. Some of them develop diarrhea after admission.

All studied cases were subjected to:

1- History taking

2- Stool examination for three successive samples were collected after admission with 3 days apart between each sample then after 15 days another three successive samples were examined by:

- Direct smear method.
- Iodine stain.
- Formol-ether concentration technique.
-ELISA testing for immunological detection of *Giardia* coproantigen.

Group II

Included 18 contacts (six mothers, six food handlers, six health care employees) they were subjected to Stool examination for three succssisve samples.

Water samples examination: (36 samples):

1- Microscopic examination:

a- Direct smear:
b- Filtration techniques.

2-Giardia antigen detection using ELISA test.

This study gives an indication of the pattern and prevalence of giardiasis in Benha University Hospital and from Benha Children Specialized Hospital. Different levels of sanitation in the population examined are likely to have a direct impact on the spread of giardiasis. Lack of knowledge about giardiasis among examined cases, especially mothers and asymptomatic carriers, help to transmit more disease among

children. Attention should be focused on public health education and improvement of the quality of hospitals food supplies.

Based on the results of the present study, it can be summarized into:

1-The nosocomial prevelance rate of giardiasis is 22.86%.

2- Giardiasis is an important cause of diarrhea in children less than six years of age especially the immunocompromized children.

3- Giardia infection is more prevalent in children from rural areas than those from urban areas.

4- The percentage of infection was higher in patients eating food prepared in hospital suggesting the possibility of infected food as well as infected mothers and hospital staff.

5- Regarding diagnostic methods, the enzyme linked immunosorbent assay detect 23 cases and proved to be more sensitive and specific than the direct methods (direct smear, iodine stain and formol ether concentration technique). It is a good negative test as the negative predictive value was 100%, however, the positive predictive value was 69.6%, so it needs further confirmation.

6- Water samples were free from infection. This may be due to continous cleaning of water tankes and water cholorination. Or may be due to water turbidity which affect examination

7- Direct smear detects three cases (4.29%) with sensitivity 18.75% and specificity 100%. It is agood positive test as positive predictive value 100%.

8- Iodine stain detects seven cases (10%) with sensitivity 43.8% and specificity 100%. It is agood positive test as positive predictive value 100%.

9- Formol ether concentration technique detects 16 cases (22.86%).