Serological Screening of Cystic Echinococcosis (CE) in Asymptomatic Dog's Owner in Rural Area in Karbala Province

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Abstract

Cystic echinococcosis (CE) is a parasitic disease that is caused by ingestion the larval stage of tapeworm Echinococcus granulosus. This disease is one from zoonotic disease that transmitted from animals to human .The primary definitive hosts for this parasite are Dogs and other canids and the intermediate hosts are sheep, cattle, goats, pigs or camels while human is an accidental intermediate host of echinococcosis that take the infection by ingestion of eggs that lies with the feces' of infected dogs.

A serological screening study was done in this study on human cystic echinococcosis (CE) in highly risk groups selected from asymptomatic dog's owner in rural area at Karbala city - Iraq.sixty nine blood sample were participated in present study from dog's owner (male only) at the first of November 2021 till the end of April 2022, and the age ranging between (16-35) years old. Enzyme Linked Immuno Sorbent Assay test was used in this study for detect specific anti Echinococcus granulosus antibodies in blood. The used ELISA kits were (Echinococcus ELISA IgG- IBL, Hamburg, Germany –RE 56201) kits.

The result shows that from 96 sample only 4 cause are seropositive (4.16%) while (95.84%) shows seronegative.

Keywords: Karbala province; asymptomatic dog's; cystic echinococcosis

1. Introduction

Cystic echinococcosis (CE) or echinococcosis,is a zoonotic parasitic disease transmitted to humans from dogs and other final hosts, [1] it is caused by Echinococcus granulosus, and has a widely distribution disease most commonly found in Middle East ,East and south of Africa and parts of South America and Australia [2]. In the intestines of dogs the Adult parasites are found. The parasite Eggs are passed within the faeces, become infect a large number of animals The final host for this disease is the dog and other canids while the intermediate hosts are sheep, cattle ,goats, pigs or camels ,the human is an accidental intermediate host of echinococcosis. In the liver and lungs and occasionally other organs the hydatid cysts (Larval stages) develop. This disease has completed life cycle when organs containing this cysts are consumed by dogs. Humans are take the infection by directly or indirectly method from eggs excreted with faeces of dog [3, 4].

Infection occurs as a result of food contamination by dog feces that containing tapeworm eggs [3, 4]. After being eaten by an animal or human, the eggs hatched and a hexacanth embryo released that can penetrates the intestinal wall and migrated to the liver, lungs and various other bodys part, where it formed a hydatid cyst (size ranges from 1 to 15 cm) [5].

The disease is known as the cancer of Iraq [6]. Is considered In Iraq, hyper endemicdisease and this is due to presence of large numbers of infected stray dogs with Echinococcus granulosus. These dogs release eggs containing the hexacanth embryo, which can infect humans and other intermediate host hosts [6].

The aim of the present study is to make serological scrrening on echinococcus granulosis disease in dog's owner in Holy City of Karbala in order to monoter transmition of disease and control of inection.

2. Material & Methods

Sixty nine blood sample were participated in present study from dog's owner (male only) at the first of November 2021 till the end of April 2022, and the age ranging between (16-35) years old. Enzyme Linked Immuno Sorbent Assay test was used in this study for detecte specific anti Echinococcus granulosus antibodies in blood. The used ELISA kits were (Echinococcus ELISA IgG- IBL, Hamburg, Germany –RE 56201) kits.

3. Result & Discussion

The result shows that from 96 sample only 4 cause are seropositive (4.16%) while (95.84%) shows seronegative. and the highly percentage was in ages from (15-20) years old.

Age	Number of sample	Positive	Negative
15-20	28	2	24
20-25	20	1	19
25-30	25	1	24
30-35	23	0	23
total	96	4	92

This infection come to the owner due to many cause either from direct contamination of vegetables or fruit with fecess of infected dogs or water and soil contamination ,also the mixed breeding of animals lead to spread of infection.

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