



CO-INFECTION OF HYDATIDOSIS WITH HEPATITIS B VIRUS IN PATIENTS OF AL-NAJAF GOVERNORATE, IRAQ

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Abstract

Hydatid cyst is remain a health problem of significant concern worldwide. *Cystic echinococcosis* (CE) is considered to be highly endemic in some countries as well as HBV. This serological ,radiographic and clinical features study involved hydatid cyst and hepatitis B virus detection. For this purpose, three groups involved : the first contained 60 patients were included (27 male, 33 female) whom had clinical or/and radio, ultrasonographic signs for hydatid cysts, the second , contain 60 patients infected with HBV, and the third group, 60 patients with mixed infection of hydatidosis and HBV. The patients were referred to Al-Sadder medical city, Al-Hakeem Hospital and Public Health Laboratory in Al- Najaf Province, Iraq.

This study had included the relationship between the hydatidosis and Hepatitis B and the impact of common injury on patients. The results showed that during diagnosis of patients with hydatidosis disease that the age groups (31-40) and (21-30) are the highest among all patients while the results showed that during diagnosis of patients with hydatidosis disease that the age groups (21-30) and (41-50) are the highest among all patients, the results showed that during diagnosis of patients with HBV that the age groups (31-40) and (41-50) are the highest among all patients, the results showed that during diagnosis of patients with hydatid cyst the organ that more infected liver and Cyst scattered in organ are the highest among all patients where it gave 23 and 14 positive cases, respectively, while The results showed that during diagnosis of patients with hydatid cyst and HBV the organ that more infected Cyst scattered in organ and liver are the highest among all patients, where it gave 24 and 20 positive cases and The size of the cysts detected were significantly in hydatid cyst with hepatitis B (Table 7). The smaller sizes found in male between (3-7 cm) in age group (10-20) and the bigger size found between (6-20 cm) in age group (41-50) year in male while in female The smaller sizes found between (4-10 cm) in age group (10-20) for hydatid cyst. and the bigger size found between (4-22 cm) in age group (31-40) in female .

Key words: Health, Environmental; hepatitis; infections

Introduction

Echinococcosis is an endemic zoonosis described by world wide distribution particularly in Mediterranean countries, one of the most severe and life-threatening zoonoses in the world (Abdul Rasool *et al.*, 2012). *Echinococcosis* an important zoonosis, caused by a larval stages of tapeworms (cestodes) belonging to the genus *Echinococcus* (family Taeniidae) (Abiyot and Abunna, 2011). Hydatid cyst (HC) or hydatidosis or cystic echinococcosis (CE) is a serious helminthic zoonotic infection that possesses an important economic and public health anxiety in rural and urban areas (Galindo *et al.*, 2002). An infection (hydatidosis) was characterised by

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long term development of metacestode (hydatid) cysts in the intermediate host, the two major species of medical and public health significance *E. granulosus* and *E. multilocularis*, which cause cystic *Echinococcosis* and alveolar echinococcosis, correspondingly, these are both serious life-threatening diseases, the latter particularly so, with a high fatality percentage and poor prognosis without careful clinical management (McManus *et al.*, 2003). Hydatid cyst develop in various organs, the shared site of infection is the liver, the lung, followed by other organs such as heart, spleen, kidneys, and the brain, may also be infected. Infection may even take place in the bone marrow cavities, but here the cysts are generally sterile and differ in their structures (Morarand Feldman, 2003). Depending on the site of the cyst in the body ,the

patient could be asymptomatic even Though the cysts have developed to very large size or be symptomatic even if the cysts are absolutely Tiny (Al-aubaidi, 2010) The most commonly involved anatomical localities are the liver and lung. Occasionally the cyst may progressively increase in size, mimicking gross ascites or intrabdominal tumor (Setareh *et al.*, 2011) Approximately (350) million people are chronically infected with Hepatitis B virus (HBV) worldwide (EASL *et al.*, 2009) As the hepatitis B patients increase in total, more people are at risk for developing cirrhosis. The hallmarks of cirrhosis are thrombocytopenia ,splenomegaly, and prolonged prothrombine time. A liver biopsy is usually required for determining the evidence of fibrosis as well as cirrhosis in patients with either increased alanine aminotransferase (ALT) or HBV DNA levels (Mani and Kleiner, 2009) Hepatitis B-related liver cirrhosis, hydatid disease are endemic diseases for Mediterranean basin. They may share same environmental routes of transmission.

Materials and Methods

Population Study:

Study period from November 2017 to October 2018, a total (180) patients. Three groups involved : the first contained 60 patients were included (27 male, 33 female) whom had clinical or/and radio, ultrasonographic signs for hydatid cysts, the second, contain 60 patients infected with HBV, and the third group, 60 patients with mixed infection of hydatidosis and HBV.. The patients were referred to Al-Sadder medical city, Al-Hakeem Hospital and Public Health Laboratory in Al-Najaf Province, Iraq. The ultrasound, x-rays diagnosis of the patients was discussed with the physician.

Serum samples collection:

2-3 ml of venous blood was drained carefully and transferred into disposable plan tube, the sample was left for (10-15) then centrifuged at 300 rpm for (5min) to separate clear serum, sera were kept at (-20 °C) till they were examined by ELISA. (Blood was taken from the patients after they had finished the sonography tests , x-rays or after surgery .

ELISA (Enzyme Linked Immunosorbent Assay) kit:

For determining the presences of specific anti human *E. granulosus* IgG antibodies.

Results

This study had included the relationship between the hydatidosis and Hepatitis B and the impact of common infection in patients. The results showed that during diagnosis of patients with hydatidosis disease that the

age groups (31-40) and (21-30) are the highest among all patients, where it gave 20 and 13 positive cases, respectively, and also showed that the infection in females are more than males, but did not give significant differences between males and females. (Table 1)

This study had included the relationship between the hydatidosis and Hepatitis B and the impact of common infection in patients. The results showed that during diagnosis of patients with hydosis disease that the age groups (21-30) and (41-50) are the highest among all patients, where it gave 20 and 14 positive cases, respectively, and also showed that the infection in females

Table 1: Prevalence of hydatid according to age group and gender

Age groups	No. of cases	Male	Female	
10-20	9	7	2	pd'' 0.05
21-30	14	5	9	
31-40	20	7	13	
41-50	10	3	7	
51-60	7	4	3	
Total	60	26	34	

are more than males, but did not give significant differences between males and females. (Table 2)

In this the (Table 3) had included seroprevalence of HBV according to age groups and gender. The results showed that during diagnosis of patients with HBV that the age groups (31-40) and (41-50) are the highest among all patients, where it gave 23 and 11 positive cases, respectively, and also showed that the infection in males are more than females, but did not give significant

Table 2: Seroprevalence of hydatid cyst and HBV according to age groups and gender

Age groups	No. of cases	Male	Female	
10-20	9	4	5	pd'' 0.05
21-30	20	13	7	
31-40	11	5	6	
41-50	14	7	7	
51-60	6	4	2	
Total	60	33	27	

differences between males and females

In this the (Table 4) had included distribution of hydatid cyst in different organs in males and female. The results showed that during diagnosis of patients with hydatid cyst the organ that more infected liver and Cyst scattered in organ are the highest among all patients, where it gave 23 and 14 positive cases, respectively, and also showed that the infection in females are more than

Table 3: Seroprevalence of HBV according to age groups and gender

Age groups	No. of cases	Male	Female	
10-20	10	7	3	pd ^{**} 0.05
21-30	9	4	5	
31-40	23	16	7	
41-50	11	7	4	
51-60	7	5	2	
Total	60	39	21	

males, but did not give significant differences between males and females.

In this the (Table 5) had included distribution of mixed infection between hydatid cyst and HBV in different organs in males and females .The results showed that during diagnosis of patients with hydatid cyst and HBV the organ that more infected Cyst scattered in organ and liver are the highest among all patients, where it gave 24 and 20 positive cases, respectively, and also showed that

Table (4): Distribution of hydatid cyst in different organs in males and female

Cyst locations	No. of cases	Male	Female	
Liver	23	9	14	pd ^{**} 0.05
Gallbladder	4	2	2	
Lung	12	7	5	
Head	2	1	1	
Spleen	3	1	2	
Backbone	2	-	2	
Cyst scattered in organ	14	6	8	
Total	60	26	34	

the infection in males are more than females.

The size of the cysts detected were significantly in hydatid cyst with hepatitis B (table 6). The smaller sizes found in male between (3-7 cm) in age group (10-20) and the bigger size found between (6-20 cm) in age group

Table 5: Distribution of mixed infection between hydatid cyst and HBV in different organs in males and females

Cyst locations	No. of cases	Male	Female	
Liver	20	13	7	pd ^{**} 0.05
Gallbladder	3	-	3	
Lung	9	4	5	
Head	2	-	2	
Spleen	1	-	1	
Backbone	1	1	-	
Cyst scattered in organ	24	15	9	
Total	60	33	27	

(41-50) year in male while in female The smaller sizes found between (4-10 cm) in age group (10-20) for hydatid cyst. and the bigger size found between (4-22 cm) in age group (31-40) in female.

Table 6: Distribution of hydatid cyst with Hepatitis B by size

Age group in years	Male Size of cyst in cm.	Female Size of cyst in cm.
10-20	3-7	4-10
21-30	4-10	5-18
31-40	7-15	4-22
41-50	6-20	3-15
51-60	5-13	5-16



Fig. 1: Simple cyst appearance by ultra sound (Liver)

Shows the size of the hydatid cyst and its location in the human body by ultra sound, reach the hydatid cyst to (17.4 cm) in the liver organ of the patient.

Discussion

Hydatidosis is remain a main public health problem in our country as in some other parts of the world (Kadir *et al.*, 2006) As far as we know the age distribution is apprehensive, the present study appeared the highest surgical prevalence in the ages (21-30) years in male. So, the maximum age of the incidence was the Thirty decade which don't agreed with (Shambesh, 1997) . In contrast, apparently conflicted with that recorded by others (15, 5). High incidence occurred in age between 31-40 years in women (Al-Obaidi *et al.*, 2008), was similar to our study result.

It is well known that liver is most frequently affected, that is interpreted to the fact that the liver acts as primary filter in the human body. However, conspicuously, the exact mechanism for the hydatid cysts development sites are yet not clear (Mortelé and Ros, 2001) This study indicated that the percentage of hydatid cyst in female is significantly higher than in male, or nearly equal in two

sexes, confirming the findings of others (Mani and Kleiner, 2009) perhaps this because the females are more commonly involved in dealing with meat, contaminated food and vegetables, and with animals (EASL *et al.*, 2009).

The current study indicates the prevalence of infection in males and females Cyst scattered of organ because the combined injury with hydatid cyst with hepatitis B, because the hepatitis B helps the cyst burst and spread in all over the body .

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