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PREVALENCE OF INFECTIOUS HEPATITIS VIRUS (HAV) IN DIARRHEAL PATIENTS IN BABYLON PROVINCE

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Abstract

Hepatitis A virus (HAV) is transmitted by the fecal–oral route and is a major cause of acute viral hepatitis. The clinical manifestations of HAV infection range from asymptomatic infection to acute liver failure (ALF), but do not include progression to chronic hepatitis. Severe infectivity is established by detection, of IgM anti–hepatitis A virus, (HAV), which appears early in the course of infectivity.) Most of the HAV patients were located within the first decade (1-10 years) with a percentage of 90%, whereas 10% of all patients were within second decade (10-20 years). In this study, HAV infectivity is distributed equally among genders. Therefore, there was no significant difference between females than male, with a ratio of (male/female ratio=1.127) and percentage of 47% females than 53% males).

Introduction

(Hepatitis A virus a tiny non enveloped single .stranded positive sense RNA virus belonging to the family of Picornaviridae is an important pathogen touching the humans at a global level (Jakribettu *et al*., 2018). In 1991 it was classified as a element of the Hepatovirus genus of the family Picornaviridae. HAV replicates. in hepatocytes and interfere with liver role, sparking an immune response that cause liver inflammation.(Elisabetta *et al*., 2012). The hepatitis A virus (HAV) is a common catching etiology of severe hepatitis worldwide; HAV does not reason chronic liver disease different hepatitis B or C. Severe hepatitis a an infectivity generally presents as a self-limited illness, development of fulminant hepatitis is uncommon (Alberts *et al*., 2019). widespread area tend to have deprived general hygiene and sanitation, as well as a lower the public socio economic status (Ramezani *et al*., 2011). (Typical symptoms of severe infectivity take in nausea, vomiting, abdominal pain, fatigue, malaise, poor appetite, and fever, management is with supportive care. Most HAV infectivity occur through fecal–oral transmission, either by straight contact with an infect person or by intake of contaminant food and water, (Nalbantoglut *et al*., 2013). (After intake, the virus, pass through intestinal tract. and gets lodged in liver where. it may replicates. interferes with liver function and triggers an immune response that cause, liver inflammation, (Nainan *et al*., 2018).

Materials and Methods

Study Population

The learning was accepted by the Ministry of Health, Babylon Health. Department according to, a special, model prepared, for this purpose. Patients' consent was also taken before starting sampling, with a clear explanation for the purpose of the study. The study was a Babylon hospital.120 model were collected, One hundred sample of patients were diagnosed with the hepatitis virus based on the clinical signs of the disease and twenty, model of healthy control during the period from September 2018 to September 2019. The ages ranged between 1 and 20 years, and 120 male and female samples were randomly selected according to availability.)

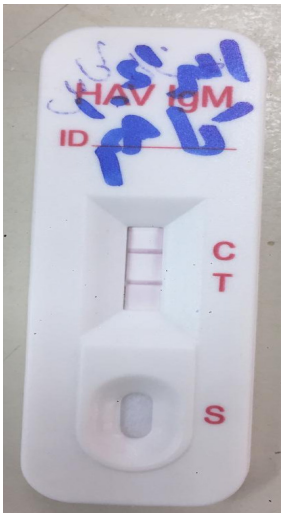
Blood Sample

Three ml of venous blood specimen were taken from each patient and healthy controls. Three ml Blood sample place in gel tube to acquire the serum were alienated by centrifuging, at 3000 rpm for 3 minutes, and use for HAV IgM viral diagnosis.

Result and Discussion

Detection of Hepatitis : A virus by rapid test

(In. severe hepatitis A. Infectivity established by detection anti-HAV IgM Figure (1-1). is evident about 3 weeks, after contact, increase above 4 to 6 weeks,, then decline to non detectable levels usually within 6 months of infectivity. HAV infectivity, is hyper widespread in Iraq, the relation frequency of positive anti HAV IgM antibodies was of patients. With a scientific mistrust of severe viral hepatitis. before study for detection HAV infectivity record 20% from patient revealed symptoms, within two to four weeks after being infected, and can last anywhere from a week to more than a month. About 15% of people with hepatitis A experience symptoms that last between six to nine months (Zhou Xiaoyan, 2019). The severity, of this HAV infectivity increase with. age and older age groups are more likely to increase the disease morbidity and mortality The study disagree with (Fadhil, 2015).



Seroprevalence, of anti-HAV IgM according to residence.

The sera prevalence of anti-HAV IgM among those reside rural areas was significantly higher (82.9%) from urban (17.1%) as in table 1 study result was shown anti-HAV IgM antibodies significantly differ between hepatitis A patients and control group

Table 1-1 : Distribution of patients according to study variables during epidemiology of (HAV)in 2018

Study variables		
Age (years)	(1-13)	**Mean** = (5.9 ± 2.87)
Gender		**Percentage**
Male	33	47.1
Female	37	52.9
Total	70	100.0
Residence		Percentage
Urban	12	17.1
Rural	58	82.9
Total	70	100.0
Infectivity occur according to month		Percentage
January	6	8.6
February	1	1.4
May	1	1.4
June	7	10.0
July	43	61.4
August	8	11.4
December	4	5.7
Total	70	100.0

The hepatitis A. is much higher in the rural than the urban due to poor economic and social services and poor sanitation and poor educational level and frequent pollution and overcrowded population and lack of educational awareness and lack of personal hygiene and this study is agree with (Tiwonge *et al*., 2015). This study was carried out on (1-20) years old children with hepatitis A. infectivity, who are admitted to Babylon, hospital for children. The infectivity with this virus increased in July (61.4%), August (11.4%), June (10.0%), January (8.6%), December (5.7%) whereas the lowest percent of the infectivity recorded in February (1.4%), May (1.4%) table (1-1).

The biochemical tests result of liver enzymes comparison with patients and controls.

To take the blood sample from the patient to examined the liver enzymes in order to recognize the severity of the disease, and through the increase liver enzymes value, when found a significant elevation this is evidence of damage to the liver due to the virus infection. There were significantly higher increases in the concentrations of:

ALT, AST and ALP as shown in the table (1-2).

Table 1-2 : Biochemical tests result of liver enzymes comparison with patients and controls.

Liver enzymes	**Mean ± SD**		**P-value**
	Patients (N=100)**	**Control (**N=20)**	
GPT	254.34±116.43	9.15±1.81	< 0.001*
GOT	139.27± 64.13	9.90± 2.51	< 0.001*
Alkaline phosphates	192.66 ± 92.46	43.10 ± 13.04	< 0.001*

**N= number of samples

There is a difference between the liver enzymes in patients and control, as the high(rate of liver enzymes are indicative of the infection of the hepatitis, while in the absence of high proportion of enzymes liver, this is evidence that control people, and therefore there is significant control and patients.)))

Table 1-3 : Show The biochemical test mean ± SD in Acute hepatitis A patients with first and second decade.

Liver enzymes	**Age(Mean ± SD)**		**P-value**
	Below (1-10) (N=90)	**(10-20) (N=10)**	
GPT	249.82±112.40	295.00±148.80	0.246
GOT	143.36±65.43	102.40±34.95	0.006*
Alkaline phosphates	193.60±94.94	184.20±69.27	0.762

Hepatitis A infection can also cause enzymes produced by the liver to increase above normal levels in the bloodstream. The most important liver enzymes are alanine aminotransferase (ALT) and as partate aminotransferase (AST). Elevated enzyme (levels indicate that the liver is not functioning properly and that there may be a risk of permanent liver damage. With hepatitis A, liver enzyme levels can be temporarily elevated, but this rarely leads to long term liver problems (Thomo, 2019).) Also there would be demonstrated. About one out of 100 people infected with HAV may experience a quick and severe infection that, very rarely, can lead to liver failure and death (*Mark Savage* 2019).(The distribution of HAV patients according to age is represented in table (1-3). It was found that the age of HAV patients ranged between 1-20 years with a mean± SD of 5.92 ± 2.68.(Most of HAV patients in this study were located within the first decade (1-10 years) with a percentage of 90%; whereas10% of all. Patients were within the second decade (10-20 years).))

Table 1-4 : The distribution of biochemical test mean ± SD in acute hepatitis A patients according to sex.

Liver enzymes	Mean ± SD		P-value
	Male (N=53)	Female (N=47)	
GPT	250.60±109.60	258.55±124.76	0.735
GOT	142.75±67.68	135.34±60.36	0.567
Alkaline phosphates	193.77±92.08	191.40±93.85	0.899

In this study demonstrated the significantly elevated levels of serum alanine aminotransferase (ALT), aspartate aminotransferase (AST) and Alkaline phosphatase (ALP) and the results agreement with previos other studies like. (Ren, J*et al*., 2015; Karbasy *et al*., 2016; Kuan-Yin Lin *et al*., 2017).

The concentrations of ALT and AST provide a quantitative assessment of liver damage during acute infection. ALT is located primarily in the liver, and is limited to the hepatocyte cytosol, while AST is found in the (mitochondria (80%) and cytosol (20%).) This compartmentalization of enzymes may partially explain the pattern of aminotransferases observed in many forms of liver disease, since during acute hepatitis, levels of ALT are significantly higher than the levels of AST, resulting in a high ratio of ALT/AST level in Also there was no significant difference between ALT and AST level with patient's gender, as shown in (table 1-4). For ALT in males an obvious increase up from 11 years to juveniles can be seen. For AST a continuous decrease in concentration in children from 2 to 14 years was also observed and showed gender differences. ALP showed gender differences. The study disagrees with (Xin Li *et al*., 2018).)

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