Asymptomatic HCV among blood donors in AL-Hilla city

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Abstract

A retrospective study was performed to study the asymptomatic hepatitis C virus (HCV) infection among healthy blood donors. The study revealed that the positivity rate was 0.431 % in 2005 and 0.365 % in 2006. The most predominate age group was 21-30 yrs followed by 31-40 yrs these groups resemble the commonly age group which donate blood. The present study showed that the positivity rate was higher in male sex in comparison with females due to social factors. From the current study it was concluded that asymptomatic HCV infection is a real health problem and further study should be performed.

Introduction

Hepatitis may be distinguished in several forms the none viral and viral hepatitis (1). Hepatitis C virus (HCV) is the major cause of post-transfusion hepatitis and community acquired hepatitis (2, 3).

Hepatitis C virus exists in the blood in two forms as free virus or in the form of complex the virus infected both the liver and lymphoid tissue (4). The chronic active viral hepatitis C is the common as a sequels to post –transfusion hepatitis and either a large inoculums is necessary for induction of chronic active viral hepatitis(5).

The clinical manifestation of HCV infection is generally indistinguishable from other viral hepatitis. The infection are usually an icteric, asymptomatic and rarely cause acute fuliminant liver failure (6) Blood transfusion is the principle route of transmission of HCV infection in patients (7,8). The majority of hepatitis patients are asymptomatic and only one third of them experience jaundice (9, 10).

The aim of the present work was to detect the asymptomatic HCV infection among healthy appearance blood donors.

Materials and Methods

A retrospective study was conducted in AL-Hilla city .The data obtained from the medical records for the years 2005 and 2006. The laboratory test employed wasUBI HCV ELISA test kit which consist of synthetic peptides corresponding to the antigenic segments of core NS3, NS4 and NSS region of hepatitis C virus which bound to the wells of the microplate. A 100*m*L of specimens or control were added to each well and incubated for 30 minutes then washed for six times to remove unbound antibodies and other serum compounds. A100*m*L of horse radish peroxidase- conjugated goat antibodies specific for human IgG was incubated for 15 minutes at 32 C.

The wells were washed to remove none bound enzyme then 100*m*L of substrates was added to each well. A yellow-orange color develops. The color changes that have occurred in each well were measured by spectrophotometer micro ELISA reader system. The cut-off value calculated according the instruction of the manufacturer.

Results

The current study showed that the positivity rate of HCV asymptomatic infection among blood donors during the years 2005 was 0.431% (69 out of 15989 blood donors) and in 2006 it was 0.365 % (76 out of 20798 blood donors). Also the results showed that the rate among males was 0.394 % and females 0.037 % during 2005 .While in 2006 the rate in males was 0.341% and females 0.024% .(Table-1)

The study revealed that the most predominate age group with asymptomatic HCV infection was 21-30 years the rate was 30.76 % and 40.25 % during 2005 and 2006 respectively followed by the age group 31-40 yrs the rate was 21.97% in 2005 and 35.06% in 2006 of the total asymptomatic cases (Table -2).

The relation between residence and positivity rate to asymptomatic HCV infection showed that in the urban and rural area the rate was 50.54 % and 49.45 % for

the 2005 year .While during 2006 the rate was 45.8% and 44.7 % for urban and rural area respectively .(Table-3).

Discussion

The current study revealed that the positivity rate of asymptomatic HCV infection among blood donors in different age groups was0.431 % in 2005 and 0.365 % in 2006.Theses results was agreed with Pakistani screening which found that the anti -HCV antibody in asymptomatic (3-15years old) was 0.58 % (11). Another study found that the anti-HCV antibodies were detected in 4.09 % of Pakistani children screened for markers of HCV (12).Much higher prevalence rate also reported in adult Egyptians with 12-24% anti HCV seropositivity. (13) A symptomatic HCV infection was present in 2.02 % as mentioned by other report. (14). The prevalence rate of HCV in developed countries was lower 0.05-0.4 % in USA. (15).

The acute stage of hepatitis C remains clinically silent in most infected people and only 15 % 0f individuals develop symptoms (7). The risk factors documented were blood transfusion, circumcision, ear piercing, unsterlized needle pricks, razors or dental procedures, vertical transmission and infection without identified risk factor were responsible for high carrier rate of HCV infection (15, 16, and 17). Alert etal (10) found that among 248 asymptomatic blood donors positive for antibody to hepatitis C which enrolled in long term prospective study, 86% had chronic HCV infection and 14 % appeared to have recovered as assessed by determination of serum alanine aminotransferase (ALT) levels and HCV RNA. Other study found that HCV positive status was significantly associated with intravenous drug use and having skin tattoos and number of times in prison. (18)

The study also documented that the most predominate age group were 21-30 years old. Many studies mentioned that the rate is consistence with increase age (16, 17). In the present report It's maybe due to the fact that this age group (21-30 years old) was the commonly blood donors due to their health status in our community.

The current study showed that the positivity rates of HCV were higher in males than in females this due to the fact that blood donors in our country usually males and rarely females.

Patino et al (19) reported that the HCV seropositivity was strongly associated with male sex and greater age and highest risk were at the age 40-49 years old. Also Kumer et al (20) mentioned that anti HCV positivity predominate in females as compared with males.

In conclusion asymptomatic HCV was a detectable health problem further study should performed by using PCR with the test of ALT level to detect HCV in asymptomatic individuals.

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Table (1): The positivity rate of asymptomatic HCV infection among blood donors.

years	Blood donors	No. positive	Total %	males %	females %
2005	15989	69	0.431	0.394	0.037
2006	20798	76	0.365	0.341	0.024

Table (2): Distribution of HCV positivity in asymptomatic blood donors according to age group.

Years	Age group									
	>20		21-30		31-40		41-50		<50	
	NO.	%	NO	%	NO	%	NO	%	NO	%
2005	5	5.49	28	30.76	20	21.97	7	7.69	9	9.89
2006	1	1.29	3	40.25	27	35.06	14	18.18	3	3.89

Table (3): Distribution of asymptomatic HCV among blood donors according to residence area.

Years	Blood donors	Total percent	Urban		Rural	
			no	%	no	%
2005	15989	0.431	35	50.54	34	49.45
2006	20798	0.365	39	45.8	37	44.7