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Original Article

Epidemiology of the hepatitis C infection in Van's region

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Abstract. Hepatitis C virus (HCV) is an enveloped positive-strand RNA virus of the genus hepacivirus in the family of Flaviviridae. HCV causes chronic infection in more than 80% of cases. It is responsible for more than 50% of liver transplantation among adults in the developed countries. Approximately 200 million people are infected with HCV entire of the world. Africa and many parts of Asia are the major endemic areas for HCV infection.

Although HCV is one of the most common cause of chronic liver disease in middle-east, its epidemiology remains unclear around the Lake Van region. Therefore, we assessed the prevalence of HCV infection in individuals who live in rural areas of eastern part of Turkey.

We retrospectively analyzed 1062 (405 male, 657 female) patients who admitted to Gastroenterology clinic of Yuzuncu Yil University Faculty of Medicine between January -October in 2011. Patients with prior HCV infection and with acute HCV infection were excluded. Presence of HCV infection was assessed by the routine ELISA method. Anti-HCV antibodies were screened by ELISA method using ADVIA Centaur ® XP Immunoassay System (Siemens, Ireland). Samples with positive HCV RNA real-time PCR was used as the correction method. Isolation reaction processes were analyzed by QIAGEN (Düsseldorf, Germany) brand in the QIAsymphony SP/AS instrument. Real Time PCR analysis was studied by Rotor Gene Q instrument and Artus HCV Virus-1 QS-RGQ kits (QIAGEN, Düsseldorf, Germany). All data was recorded on SPSS and was analyzed by simple statistical methods.

The mean age was 46.1±17.9 years in males and was 42.5±17 years in females. 3 men and 6 women had anti-HCV antibody. Total Anti-HCV seropositivity was 0.8%.

Interestingly, HCV infection is not a serious health problem in eastern part of Turkey. It may be due to low prevalence of intravenous drug users and homosexuals as well as to strict traditional rules. Further analyses may be required to establish this phenomenon particularly in eastern part of Turkey which is located on the main cross-road of the world narcotic trade.

Key words: Hepatitis C virus, Van city, prevalence

1. Introduction

Hepatitis C virus (HCV) is a single-stranded, 9600 base-pair RNA virus (genus Hepacivirus) in the family flaviviridae. Six major HCV genotypes have been described, classified 1-6, which are divided further into subtypes (1a, 1b, 2a, etc). Infection with HCV is a major cause of chronic hepatitis, cirrhosis, hepatocellular cancer as well as liver transplantation in many parts of Western world (1). The predominant risk factors for HCV acquisition are illicit injection-drug use, blood transfusion before 1992, multiple number of sexual partners, and iatrogenic transmission, including hemodialysis (2,3). According to data from recent reports, the African and Eastern Mediterranean countries are considered as high prevalent (>%10) areas for the HCV infection (4). In Turkey, many researchers have searched prevalence of HCV infection in various groups (blood donors, health care workers, hemodialysis patients, and students) in different parts of the country. Studies from Turkey, with a population of 80 million people, have indicated that prevalence of HCV infection is less than 2.5% (5). Turkey was also classified as low-endemic

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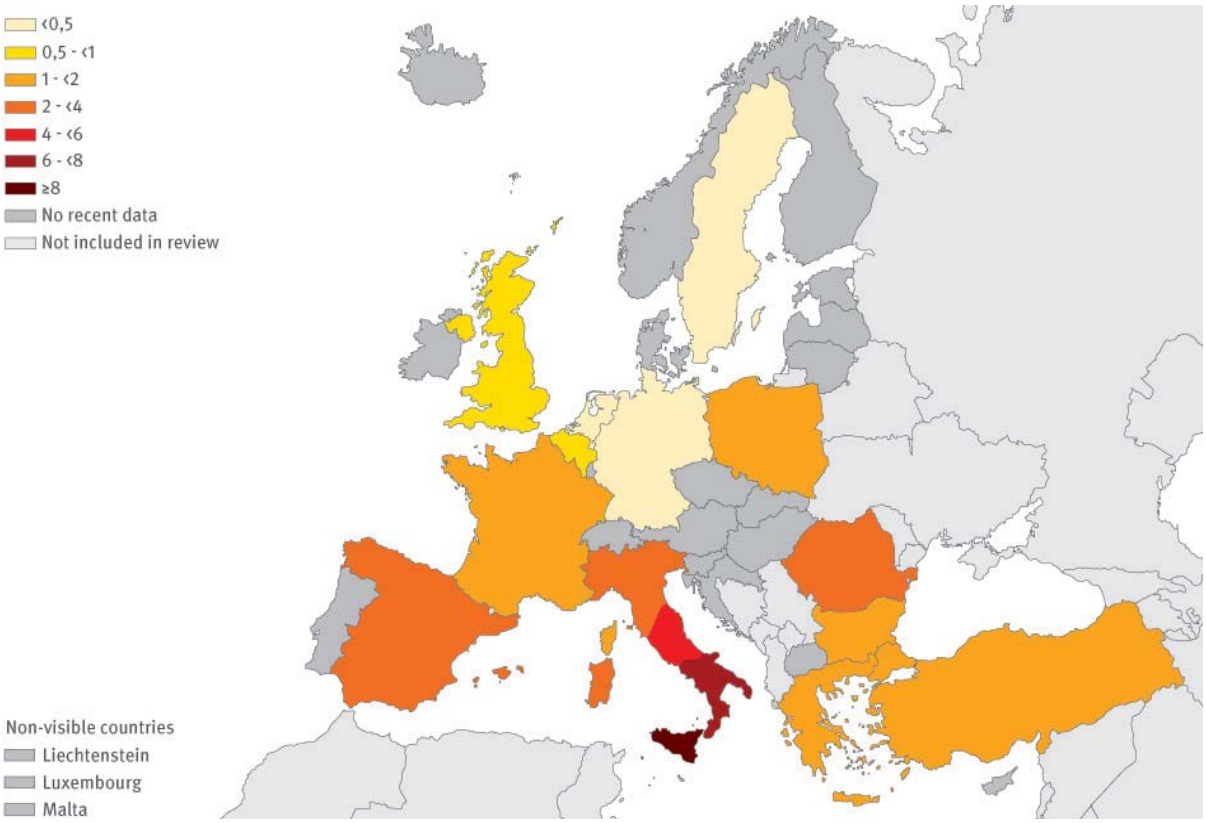
for HBV among the countries in the Europe Union (EU) neighborhood, according to the recent report from EU (Figure 1). Further data also indicated that, prevalence of HCV infection has been reported as 0.6% to 2.1% in eastern part of Turkey (6,7).

It is well known that intravenous drug users had the highest incidence of HCV infection and were considered as major source of disease transmission (8,9).

However, there is still no data about the prevalence of HCV in Van region where is located on the main cross-road of the world narcotic trade. Therefore, we assessed the prevalence of HCV infection in individuals who live in rural areas of eastern part of Turkey.

2. Material and method

We retrospectively analyzed 1062 (405 male, 657 female) patients who admitted to Gastroenterology clinic of Yuzuncu Yil University Faculty of Medicine between January -October in 2011. The mean age was 46.1±17.9 years in males and was 42.5±17 years in females. According to guidelines, acute HCV infection is defined as an infection of less than 6 months duration. Chronic HCV infection is defined as an infection that persists for more than 6 months, with or without clinical manifestations of hepatic or extrahepatic disease. Patients with prior HCV infection and with acute HCV infection were excluded. Presence of HCV infection was assessed by the routine ELISA method. Anti-HCV antibodies were screened by ELISA method using ADVIA Centaur® XP Immunoassay System (Siemens, Ireland). Samples with positive HCV RNA real-time PCR was used as the correction method. Isolation reaction processes were analyzed by QIAGEN (Düsseldorf, Germany) brand in the QIAsymphony SP/AS instrument. Real Time PCR analysis was studied by Rotor Gene Q instrument and Artus HCV Virus-1 QS-RGQ kits (QIAGEN, Düsseldorf, Germany). Anti-HCV seropositivity considered as positive. SPSS, version 15.0 was used for statistical analysis. We also used corrected χ^2 test to compare percentages, and $p<0.05$ was considered statistically significant.



*Source: European Centre for Disease Prevention and Control. Hepatitis B and C in the EU neighbourhood: prevalence, burden of disease and screening policies. Stockholm: ECDC; September- 2010.

Fig. 1. Hepatitis C prevalence in the general population: anti-HCV

3. Results

3 men and 6 women had positive anti-HCV antibody. Male and female rate was found as 1/2. Total anti-HCV seropositivity was 0.8%. There were no statistically significant differences between genders. None of them was intravenous drug user. In HCV positive group, 2 women and 2 men had blood transfusion before 1992. None of the anti-HCV positive individual had a history of tattooing or being in prison or was a homosexual. No significant medical history was also recorded on the remainder of the subjects. 7 of 9 patients were also HCV-RNA positive.

4. Discussion

It is estimated that at least 2.35% of the world's population is chronically infected with HCV. However, the prevalence of HCV infection appears to vary geographically and correlates with the underlying intravenous drug abuse (10). HCV infection is known to be one of the major causes to chronic hepatitis, liver cirrhosis, hepatocellular carcinoma, and liver failure around the world (11).

Several new antiviral and effective antiviral agents have been evaluated and used to treat the HCV infection in recent years. Host and viral factors, as well as coinfection with other viruses, particularly Hepatitis B virus (HBV) or human immunodeficiency virus (HIV) can affect the natural course of HCV infection as well as antiviral therapies. Mortality and morbidity in chronic HCV infection (CHC) are due to persistence of viral replication and progression to liver cirrhosis or hepatocellular carcinoma (HCC) (12).

A significant portion of end stage liver disease in Europe is mostly due to HCV infection (13) and the most common risk factor for spreading of HCV infection is intravenous drug usage (IDU), especially among young people in EU (14). On the other hand, in a large cohort of pregnant women in Lorestan, West of Iran, seroprevalence of anti-HCV was found only 0.2% (15).

HCV–related end stage liver disease and HCC are responsible for limited number deaths in Turkey (16). In a recent report in Van prefecture of Turkey, prevalence of anti-HCV in patients with decompensated cirrhosis and HCC was found as 8.3% and 5.1%, respectively (17).

Although Turkey is lacking a national screening or reporting system for HCV infection, there are many studies about the prevalence of HCV which is mostly derived from local or regional studies. Randomly selected population-based studies show varying estimates of the prevalence across Turkey, from 0.6% (18) in 2888 subjects in the southeast to 2.1% (7) in a study of 1095 subjects in Tokat city near the Black Sea region, which may also suggest regional differences in countrywide.

Current study revealed that seroprevalence of anti-HCV in Van prefecture was consistent with presented data from Turkey. Our study also shows that the seroprevalence of anti-HCV is 0.8%, which is similar with a report by Turkish authors in Hakkari province where is also located along the Iranian border of Turkey (19).

Prevention of new infections with HCV is linked to effective screening programmes which may also reduce the overall morbidity and mortality. However, the cost-effectiveness of HCV screening is depended on the HCV prevalence in the country (20).

According to current study, the eastern part of Turkey was considered as an area with a very low prevalence of HCV infection (0.8%). Interestingly, seroprevalence of anti-HCV in the eastern part of Turkey was not driven by IDU as well as narcotic trading. Furthermore, screening programmes for prevention of HCV infection may not be a cost-effective approach due to low prevalence rate of the disease particularly in eastern part of Turkey.

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