Viral hepatitis in patients hospitalized in two teaching hospitals, Tehran, Iran

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ABSTRACT

Background: Viral hepatitis is a systemic infection affecting the liver predominantly. Almost all cases of acute viral hepatitis are caused by one of five viral agents: HAV, HBV, HCV, HDV and HEV. The present study aimed to find out the frequency of various forms of viral hepatitis (HAV, HBV, and HCV), route of transmission, the history of vaccination against hepatitis B, and clinical findings in 252 hepatic patients referring to 2 teaching hospitals.

Patients and methods: In this descriptive study, 252 patients with viral hepatitis hospitalized in two university hospitals were included. Based on medical files, the initial data and laboratory indices including HBS-Ag, HBS-Ab, anti–HBC Ab, anti–HCV Ab (ELISA generation II), anti-HAV Ab (IgG, Ig M), and anti-HIV Ab were gathered.

Results: The mean age of patients (± standard deviation) was 40.3±16.3 years. Of 252 cases, 37 (14.5%) suffered from acute viral hepatitis, while 215 (85.5%) were chronically infected. Finally, the frequency of various forms of viral hepatitis was as follows: hepatitis A 5.2%, hepatitis B 54.8%, hepatitis C 34.9%, and hepatitis B and C co-infection 5.2%.

Conclusion: With respect to the hazardous complications of hepatitis B and C and the reality that most of the patients are in their reproductive ages, suitable strategic planning for controlling and preventing the disease is of utmost importance.

Keywords: Viral hepatitis, Hepatitis B, Hepatitis C, Hepatitis A, Iran.
followed by 89.8% and 97.5% in 20-29 and >29 years old individuals, respectively (2).

Hepatitis B various infection is a global public health problem. In countries where HBV carrier rates reach 10%, HBV infection may account for 3% of total mortality (3). HBs-Ag test was performed on the sera of 39,841 Iranian people and the impact of several factors on the prevalence rate of HBV carriers was determined. The rate of hepatitis B carriers varied between zero and 3.9% with an average of 1.7%. Older males living in villages with low socioeconomic status, poor sanitation and interfamily contacts are the most important contributors to the rise in hepatitis B infection in our country (4). A population-based study showed that the prevalence of hepatitis B surface antigen and anti-hepatitis B core antibody in Iran was 2.6% and 16.4%, respectively (5).

Hepatitis B virus prevalence has decreased dramatically in Iranian population during the last decade and now it is classified as having low endemicity for hepatitis B infection (6).

The prevalence of hepatitis C is about 1% in Iran. Blood samples were taken from blood donors who referred to Ahvaz blood transfusion center during 2007-2008. Of 2376 blood donors, only 55(2.3%) male donors showed to be positive for HCV-Ab among whom 45(1.8%) were positive for RT-PCR (7).

The present study aimed to find out the frequency of various forms of viral hepatitis (HAV, HBV, and HCV), possible routes of transmission, the history of vaccination against hepatitis B, and clinical findings in 252 hepatic patients referring to 2 tertiary hospitals in Tehran.

**PATIENTS and METHODS**

In this descriptive study, 252 patients with viral hepatitis hospitalized in two university hospitals were included. The following initial data were gathered at baseline: age, gender, acute or chronic hepatitis, type of hepatitis (according to definite documented data in their medical files), possible routes of transmission (fecal–oral, blood transfusion, IV drug users (IDU), needle stick, vertical, horizontal, sexual, tattooing, or dental procedures), history of vaccination against hepatitis B (the only common vaccination for hepatitis in Iran), duration of documented disease, first symptoms of the disease, chief complaints of the patients at the time of admission, clinical manifestations (icter, fever, peripheral edema, ascitis, abdominal pain and stigmata sign) were all gathered as well as laboratory indices including HBS-Ag, HBS-Ab, anti– HBC Ab, anti–HCV Ab (ELISA generation II), anti-HAV Ab (IgG, Ig M), and anti-HIV Ab.

In addition, ethical principles were observed since the information of the medical files of the patients were considered confidential.

**RESULTS**

The study population included 187 males and 65 females with the mean age of 40.3±16.3 years (a range, 5-76 years). Totally, 37 (14.5%) suffered from acute hepatitis, while 215 cases (85.5%) were chronically infected (including cirrhotic patients). According to the final diagnosis, the frequency of various forms of viral hepatitis was as follows: hepatitis A 5.2% (n=13, acute form=13), hepatitis B 54.8% (n=138, acute form=20), hepatitis C 34.9% (n=88, acute form=4), and hepatitis B and C co-infections 5.2% (n=13, all were in chronic form).

Concerning the possible route of transmission, all HAV-infected patients had a history of consumption of contaminated food. The most frequent routes of transmission for HBV and HCV infections were: intravenous drug use (20.2%), blood transfusion (19.8% of whom 8.3% were on hemodialysis), horizontal route (13.1%) (the patient who suffered from HBV infection had at least one known case of viral hepatitis among his/her siblings, partners or spouses but the patients...
with HCV infection did not report such cases),
dental procedure (4%), sexual contacts (2%),
needle stick (1.2%), tattooing (0.4%), multiple
sexual contacts and tattooing (0.4%), and multiple
sexual contacts and becoming needle stuck (0.4%).
Meanwhile, route of transmission was not
identified in 38.5% of patients.

Primary symptoms of patients with acute
hepatitis (37 cases) were as follow: icter (100%),
malaise (81.8%), right upper quadrant pain
(81.8%), anorexia (75.7%), dark urine (67.6%),
nausea and vomiting (45.9%), fatigue (40.5%),
inflation of abdomen (27.2%), flu-like illness
(27.2%), and arthralgia (13.5%). Furthermore,
among patients with chronic hepatitis the following
primary symptoms were obvious: icter (23.3%),
fever (11.2%), abdominal and extremities swelling
(10.2%), abdominal pain (9.3%), and loss of
consciousness (2.3%). Meanwhile, 67.3% were
symptom-free and the disease was incidentally
diagnosed.

Totally, 25 ascetic patients presented with a
documented tap of ascitis fluid, which was high
gradient in 76% and low gradient in 24%. A total
of 14 patients (10 acute and 4 chronic subjects)
complicated with encephalopathy, among whom 10
had HBV, 2 had HCV, 1 had HAV and the other
one had HBV-HCV co-infection. Finally, 4 cases
suffered from fulminant hepatitis (HBV infection).

Of 139 HBV-infected patients, HBs-Ag, anti-
HBC Ab, HBS-Ab, and HBe-Ag were positive in
95.7%, 100%, 4.3%, and 36%, respectively. Anti–
HIV Ab (ELISA) was negative among all subjects.

DISCUSSION

Viral hepatitis, as one of the most important
sanitary problems in the world, may lead to many
complicated problems in liver and other related
organs. Since the disease is mostly preventable, it
is very important to know the incidence of different
types of viral hepatitis and the routes of
transmission in order to apply appropriate
preventive sanitary programs to reduce the
incidence of the infection.

Among 252 patients with viral hepatitis, the
frequency of HAV infection was 5.2%. With
respect to the fact that Iran is an endemic area for
HAV infection, this frequency is much lower than
expectations. This could be explained by that fact
that most of HAV-infected patients do not need
hospitalization (8), and the sanitary conditions have
been improved during recent years in Iran. The
prevalence of HBV was much higher than HCV
infection (54.8% vs. 34.9%), according to the
global statistics and hospital records (8-12).

Hepatitis is more common among men than
women, partly because of high risk behaviors
among men. The average age of the patients with
HBV and HCV infections was 40 years, which was
in agreement with other societies (14,15).

Most of the cases were infected through
intravenous drug use (IDU) or blood transfusion,
however, 34.1% were unaware of the transmission
route, a fact that indicate the majority of people are
neither aware of ways of transmission nor the
preventive methods. Intravenous drug use (20.2%)
was found more commonly than sexual contact in
both HBV- and HCV-infected cases, however, in
most well-developed countries sexual route is more
predominant (14). Among 899 IDUs in Tehran,
HCV infection was detected in 34.5% while past or
current HBV infection was recorded in 50.7% (16).

Moreover, a high rate of infection transmission
through blood transfusion (19.8%) implied the
insufficient programs of screening blood products
in the past, however, good news are heard on safety
of blood products in Iran. In developing countries
like Iraq, blood transfusion is a major problem.
Al–Kubaisy and colleagues determined the
seroprevalence of HCV specific antibodies among
559 Iraqi children with thalassemia after repeated
blood transfusions. HCV antibodies were detected
in 376 (67.3%) using third–generation enzyme immunoassay and confirmatory immunoblot assays (17). Therefore, strict measures to control the spread of HCV need to be taken by introducing advanced techniques for blood donor screening. Systemic surveillance of risk factors among infected blood donors provides ongoing information about the effectiveness of donor selection and is recommended to evaluate and optimize blood policies.

Totally, 13 cases had HBV and HCV co-infection, all of whom were IDUs. Co-infection with hepatic viruses is quite high among IDUs, although HAV does not necessarily share the same risk factors relevant for HBV or HCV transmission (16,18).

Furthermore, 3 health care workers were infected through needle stick injuries. In a study in Isfahan, it was pointed out that a large number of injuries caused by contaminated sharp devices could be prevented by implementing suitable educational programs regarding disposal of sharp devices and using safe needles (19).

Unfortunately, a vast majority of patients (98.8%) were not vaccinated against HBV. Vaccination of neonates as a part of the expanded program on immunization (EPI) has been commenced since 1991 in Iran, and recent studies demonstrated decreasing trend of HBV and HCV infection in Iran (20, 21).

In conclusion, with regard to the hazardous complications of hepatitis B and C infection, and the reality that most of the patients are in their reproductive ages, suitable strategic planning for controlling and preventing the disease is of utmost importance.

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REFERENCES


