

Prevalence of HBS and HCV in Euthyroid Persons of Southern Punjab—A Hospital Based Study

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ABSTRACT

Background: Infection by HBV and HCV is the most serious health problem in our country especially in the southern Punjab. Very few studies exist on incidence of this infection but they hardly reflect our general population.

Aim: To find the prevalence of hepatic infection in the general population of southern Punjab.

Methods: A total of 120 euthyroid patients (males: 36 Females: 84) who visited MINAR for thyroid tests during December 2010-11 were included in this study. The mean age of these persons was 30.7±0.09 years (range 18-52 years). The patients with thyroid disorders and other infectious or non-infectious disease were excluded. Serum was tested for HBS and HCV detection using commercially supplied kits of HBS (One Step Test Device) and HCV (One Step Test Device) for qualitative detection of HBS or HCV. The principle of the test was rapid chromatographic immunoassay for the qualitative detection HBS and anti-HCV. T₃, T₄ and TSH were measured by RIA methods.

Results: Out of 120 subjects 4(3.3%) were found positive for HBsAg and 18(15%) were found positive for anti-HCV. Statistical comparison of this data showed that prevalence of HCV infection was about 4 times higher than HBV infection (p=0.00028). Prevalence of HBsAg in males (8%) was significantly higher than females (1.2%; p<0.006345) whereas prevalence of HCV in males (16.7%) was not significantly different from females (14.2%;p=0.521303). Comparison of groups of males positive for HCV and HBS showed that the incidence of HCV infection (16.7%) was significantly higher than HBS (8.33%). (p=0.0102). Similarly comparison of groups of females positive for HCV and HBS showed that the incidence of HCV infection (14.2%) was significantly higher p=0.000011) than HBS (1.2%).

Conclusion: The increased level of HCV infection in our population is alarming and needs extensive studies and preventive measures in future.

Keywords: Hepatitis B, Hepatitis C, Prevalence, Euthyroid

INTRODUCTION

Hepatitis-B is a serious liver infection caused by hepatitis-B virus (HBV). Worldwide, an estimated two billion people have been infected with the hepatitis-B virus (HBV), and more than 350 million have chronic (long-term) liver infections. Hepatitis-B^{1,2}. Hepatitis C is also an infectious disease affecting primarily the liver, caused by the hepatitis-C virus (HCV)³. The infection is often asymptomatic but chronic infection can lead to scarring of the liver and ultimately to cirrhosis, which is generally apparent after many years. It is estimated that 130–170 million people, or ~3% of the world's population, are living with chronic hepatitis-C. About 3–4 million people are infected per year, and more than 350,000 people die yearly from hepatitis-C related diseases⁴. Rates have increased substantially in the 20th century due to a combination of IDU and intravenous medication or

poorly sterilized medical equipment⁵. Unscreened blood transfusion, rampant use of used syringes, use of contaminated tools by barbers and dental surgeons, tattooing have made it one of the biggest health concerns. The disease is transmitted by body fluids such as blood, semen, saliva and vaginal secretions.

In Pakistan where majority of the people are below the poverty line the incidence of hepatitis is very high. It is the frequent cause of death in our population. The diseased people are usually ignored by the society. According to some rough estimates, the hepatitis-infected population is around 15 million. Health professionals and government officials give conflicting statements about the prevalence rate of Hepatitis-B in the country. Going by their statements the prevalence rate may vary from 1.7–5.5%⁶. This means millions of Pakistanis have been infected with this deadly virus but no public department or agency is trying to collect accurate information about the number of positive cases. It is claimed that the Hepatitis-B virus is 100 times more concentrated in the blood than the HIV virus making it much easier to spread. Hepatitis-C is often called a 'silent epidemic'

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and it can live in the body for decades, often with no symptoms, while attacking the liver. The long-term consequences of Hepatitis-C can include liver disease, liver cancer, and death. There is also no cure for Hepatitis-C⁷.

Hepatitis-C may be community acquired but the mechanism is not clear. It is endemic world wide and has high incidence in Japan, Italy, Spain and South Africa. In Pakistan at least four percent of the blood donors have HCV antibodies.⁸

Recently there is a significant increase of number of these patients in our hospitals. The patients usually come to the hospitals when the disease has significantly damaged the liver tissues and effective antiviral treatment is not possible. Although some studies on asymptomatic persons have been conducted, the population in southern Punjab has not been studied in detail. Almost no control measures exist in our region. As a result a significant number of patients become a victim of these infections. There is therefore a need to conduct more population studies to find rate of increase of this disease. For this purpose we selected an easily accessible representative sample for our study. In our view the best sample could be the healthy/non-symptomatic group of persons that includes all sections of our people. MINAR investigates persons referred for laboratory tests for different clinical problems like thyroid disease. A significant proportion of persons is normal. These persons belong to all walks of life. We have therefore selected the persons who are healthy and appear to be normal (or euthyroid) after clinical examinations and thyroid function tests. The main objective of this study was therefore to estimate the incidence of HBs and HCV infection in the population of our region and to suggest a strategy for extensive future studies.

MATERIALS AND METHODS

A total of 139 patients (in series in records) referred to MINAR for thyroid function tests in December 2011 were investigated for HCV and HBS infection. The levels of these hormones in these patients and their history showed that 7 (5%) patients were hypothyroid and 12 (8.6%) were hyperthyroid. The patients were also checked by our clinicians to assess their health. A total of 120 euthyroid patients (males: 36 Females: 84) were therefore included in the study. The mean age of these persons was 30.7±9 years (range (18-52 years)). The age distribution of these persons is displayed in figures 1-3. The patients with thyroid disorders and disease were excluded. All the individuals belonged to Southern Punjab.

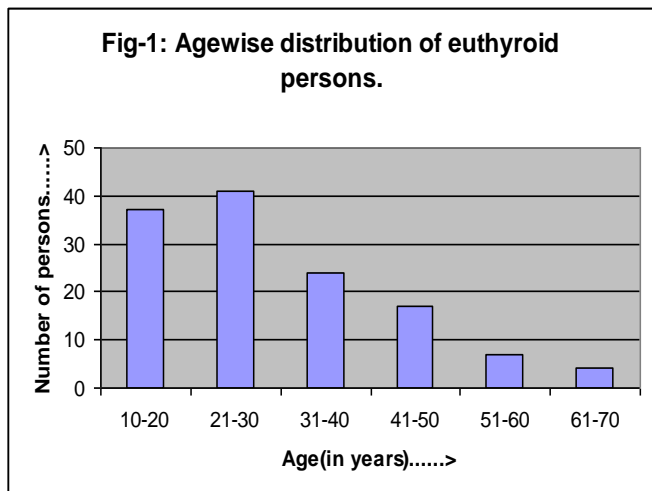
RESULTS

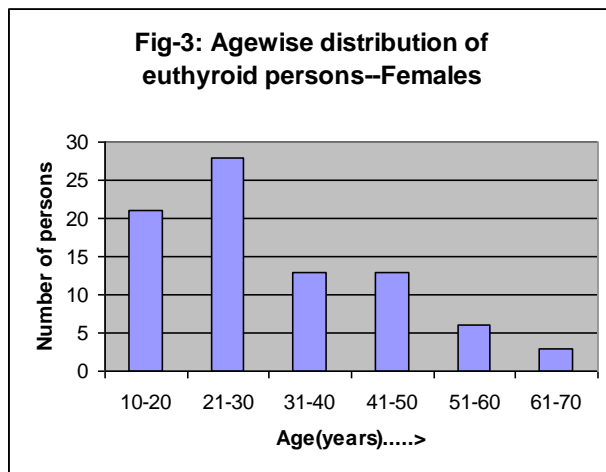
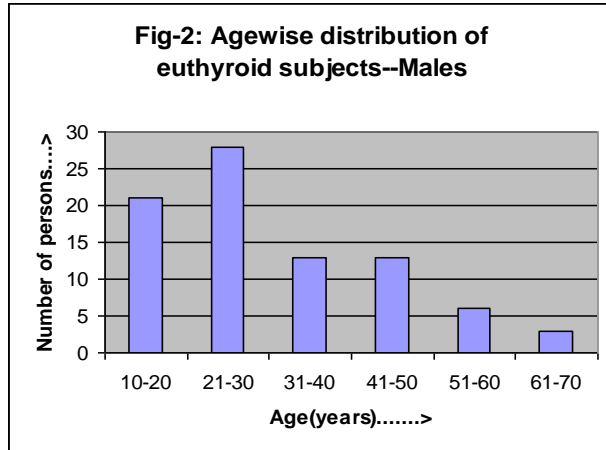
The observed prevalence of HBS and HCV along with their T₃, T₄ and TSH levels is shown in table-1. Out of 120 subjects 4(3.3%) were found positive for HBsAg and 18(15%) were found positive for anti-HCV. We therefore report 3.3% prevalence of HBS and 18% prevalence of HCV in our population. Statistical comparison of this data showed that prevalence of HCV infection was about 4 times higher than HBV infection (p=0.00028). Prevalence of HBsAg in males (8%) was significantly higher than females (1.2%; p<0.006345) whereas prevalence of HCV in males (16.7%) was not significantly different from females ((14.2%; p=0.521303). Comparison of groups of males positive for HCV and HBS showed that the incidence of HCV infection (16.7%) was significantly higher than HBS (8.3%). (p=0.0102). Similarly comparison of groups of females positive for HCV and HBS showed that the incidence of HCV infection(14.2%) was significantly higher p=0.000011) than HBS (1.2%).

Table-1: T₃,T₄ and TSH levels (expressed as mean±SD) in euthyroid subjects infected with HBS or HCV

	Male	Female	Overall
	36	84	120
HBS+	3(3.8%)	1(1.2%)	4(3.3%)
HCV+	6(16.7%)	12(14.2%)	18(15%)
Mean T ₃	2.3±0.87	2.1±1.0	2.1±0.9
Mean T ₄	103.9±19.2	111.7±15.3	109±33.2
Mean TSH	1.6±1.1	1.34±1.1	1.2±0.98

p-values(chi square test)
 HBsAg vs HCV(All persons): p-value: 0.00028
 HBs males vs females: p-value: 0.006345
 HCV males vs females: (p=0.521303)
 HBs males vs HCV males: p=0.0102
 HBs females vs HCV females: p=0.000011





DISCUSSION

Chronic Liver Disease (CLD) has become a major public health problem not only in our country but in the world as a whole. In Europe and USA excessive consumption of alcohol, and in Asian countries HBV and HCV are responsible for 75% of cases of chronic liver disease (CLD)⁷. In Pakistan it is mainly due to hepatitis B (HBV) and hepatitis C (HCV) although other causes like alcohol and some metabolic disorders also exist⁸. The spread of these viruses is perpetuated by the reuse of disposable tools like syringes by some general practitioners and quacks especially in the rural areas^{9,10}, which is responsible for 69% of all cases in our region. In Pakistan the prevalence of anti-HCV antibodies has been estimated to be approximately 6% and that of hepatitis B antigen to be in the range 1.7–5.5%⁶. Chronic hepatitis B and/or C may lead to CLD and other pathological conditions like portal hypertension, hepatic insufficiency and hepatocellular carcinoma¹². Although CLD is commonly caused by viral hepatitis in Pakistan, it may have some other relatively less

common and potentially treatable aetiology, including autoimmune liver disease, primary biliary cirrhosis, Wilson's disease and haemochromatosis. Repeated studies on the prevalence of viral hepatitis could be helpful in controlling this infection.

We observe an overall 3.3% prevalence of HBs and 18% prevalence of HCV. The prevalence of HCV is much high when compared to prevalence of HBs and findings of international research. The alarmingly high level of this infection (different from already reported figures) in our region should be noticed by health authorities for control measures. High prevalence of HBs in males compared to females also needs attention. The sources of exposure of the males to this infection could be different from females. This needs further studies. Prevalence of HCV is almost the same in both the sexes. However in both the groups, prevalence of HCV is much higher than the prevalence HBs. We therefore suggest further studies to find the reasons for increased prevalence of HCV in our region. The human sample we selected for study could be very easy to access and does not involve extensive funding. However the findings of this study should not be used to establish a relationship between thyroid disease and hepatic infection. For this we need further studies including hypo and hyperthyroid subjects and results of function testing. This study also indicates that our laboratory staff is also exposed seriously to this viral disease. So the preventive measures need to be enhanced in our laboratories.

CONCLUSION

Prevalence of HCV is higher than HBs in our population. Prevalence of HCV is even higher than values reported earlier. The increased level of HCV infection in our population is alarming and needs extensive studies and preventive measures in future. The human sample we selected for our study accurately represents our general population and is very easy to access. It does not involve extensive funding and legal complications. We recommend frequent studies using large number of individuals for research on the prevalence of HCV/HBs in our population.

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