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RISK FACTORS OF HEPATITIS B AND HEPATITIS C IN LOCAL POPULATION OF PAKISTAN

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Abstract:

Introduction: *Hepatitis B virus (HBV) and hepatitis C virus (HCV) are among the principal causes of severe liver disease, including hepatocellular carcinoma and cirrhosis-related end-stage liver disease. The World Health Organization (WHO) estimates that there are 350 million people with chronic HBV infection and 170 million people with chronic HCV infection worldwide.* ***Aims and objectives:*** *The basic aim of the study is to find the risk factors of hepatitis B and C among local population of Pakistan.* ***Methodology of the study:*** *This cross-sectional study was conducted at Bahawal Victoria Hospital, Bahawalpur during June 2019 to January 2020. A total 120 study participants aged ≥18 years with clinically diagnosed CLD were included in the study by convenient sampling technique.* ***Results:*** *A total of 120 patients with signs and symptoms of CLD were recruited. Of these, 85 subjects completed the study. The mean age ± SD for all the study population was 45±5.6 years (range = 18–80). Majority, 75.8% were below the age of 50 years, 67 (55.8%) were married, 32 (26.7%) single, 11 (9.2%) divorced, and 10 (8.3%) widow. In relation to residence area, 91 (75.8%) of the participants were urban dwellers.* ***Conclusion:*** *It is concluded that prevalence of HBV and HCV infections among CLD patients in this study is high. Dental extraction at health facilities has 2.95 time association of acquisition of HCV infection than those who do not have history of dental extraction.*

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INTRODUCTION:

Hepatitis B virus (HBV) and hepatitis C virus (HCV) are among the principal causes of severe liver disease, including hepatocellular carcinoma and cirrhosis-related end-stage liver disease. The World Health Organization (WHO) estimates that there are 350 million people with chronic HBV infection and 170 million people with chronic HCV infection worldwide. Hepatitis B is estimated to result in 563 000 deaths and hepatitis C in 366 000 deaths annually. Given its large population (165 million) and intermediate to high rates of infection, Pakistan is among the worst afflicted nations.

Hepatitis is an inflammation of the liver, most commonly caused by a viral infection. Of these viruses, hepatitis B virus (HBV) and hepatitis C virus (HCV) infections account for a substantial proportion of liver diseases worldwide. These viruses are responsible for liver damages ranging from minor disorders to liver cirrhosis and hepatocellular carcinoma (HCC). Approximately 7% of the world's population (350 million people) are infected with HBV and 3% (170 million people) with HCV. On the basis of the HBV carrier rate, the world can be divided in 3 regions of high, medium, and low endemicity. In Sub-Saharan Africa, the HBV carrier rate is over 8%. Combined HBV and HCV infection is possible because of common modes of viral transmission. HBV is transmitted through exposure to infective blood, semen, other body fluids, or from infected mothers to infants at the time of birth. Transmission may also occur through transfusions of HBV-contaminated blood and blood products, contaminated injections during medical procedures, and through injection drug use. HCV is mostly also transmitted through exposure to infective blood through transfusions of HCV-contaminated blood and blood products, contaminated injections during medical procedures, and through injection drug use. Sexual transmission is also possible.

Hepatitis B virus (HBV) and hepatitis C virus (HCV) infections contribute to the global public health threats confronting most developing countries, where health care systems lack the safety measures necessary to avert the risks of infection and public awareness about the modes of transmission is insufficient. A large number of HBV and HCV studies have been carried out in Pakistan over the past two decades, restricted to clinical and hospital-based settings, blood bank institutions and small communities that could not validly demonstrate the distribution of HBV and HCV in the general population, though corroborating the existence of a high burden of chronic liver disease (CLD) in the country.

Aims and objectives

The basic aim of the study is to find the risk factors of hepatitis B and C among local population of Pakistan.

METHODOLOGY OF THE STUDY:

This cross-sectional study was conducted at Bahawal Victoria Hospital, Bahawalpur during June 2019 to January 2020. A total 120 study participants aged ≥18 years with clinically diagnosed CLD were included in the study by convenient sampling technique. Patients were recruited by consecutive basis. The diagnostic criteria for grouping patients as chronic liver disease were based on history, clinical, ultrasound, and impaired liver function tests. Clinically diagnosed patients with CLD who fulfilled the eligibility criteria were interviewed to gather data on sociodemographic and risk factor using predesigned questionnaire after consent was obtained. Five milliliter of blood was collected and serum separated and divided in two aliquots. One aliquot was used for HBsAg screening and the other for anti-HCV antibody screening as per manufacturer instruction.

Analysis

Two-way ANOVA was performed to study the contributions. A chi-square test was used to examine the difference in the distribution of the fracture modes (SPSS 19.0 for Windows, SPSS Inc., USA).

RESULTS:

A total of 120 patients with signs and symptoms of CLD were recruited. Of these, 85 subjects completed the study. The mean age ± SD for all the study population was 45±5.6 years (range = 18–80). Majority, 75.8% were below the age of 50 years, 67 (55.8%) were married, 32 (26.7%) single, 11 (9.2%) divorced, and 10 (8.3%) widow. In relation to residence area, 91 (75.8%) of the participants were urban dwellers.

Table 01: The prevalence of hepatitis B surface antigen and antihepatitis C virus antibody in chronic liver disease patients.

Sociodemographic Characteristics	Serostatus for HBV		Serostatus for HCV	
	Positive No. (%)	Negative No. (%)	Positive No. (%)	Negative No. (%)
Gender				
Male (76)	29 (24.2)	47 (39.2)	14 (117)	62 (51.7)
Female (44)	14 (11.7)	30 (25.0)	13 (10.8)	31 (25.8)
Marital status				
Married	23 (19.2)	44 (36.7)	18 (15.0)	49 (40.8)
Single	15 (12.5)	17 (14.2)	1 (0.8)	31 (25.8)
Divorced	3 (2.5)	8 (6.7)	3 (2.5)	8 (6.7)
Widow	2 (1.7)	8 (6.7)	5 (4.2)	5 (4.2)
Residence				
Urban	34 (28.3)	57 (47.5)	22 (18.3)	69 (57.5)
Rural	9 (7.5)	20 (16.7)	5 (4.2)	24 (20.0)
Occupation				
Driver	1 (0.8)	4 (3.3)	2 (1.7)	3 (2.5)
Unemployed	4 (3.3)	9 (7.5)	3 (2.5)	10 (8.3)
Daily laborer	3 (2.5)	4 (3.3)	0 (0.0)	7 (5.8)
Commercial	2 (1.7)	5 (4.2)	3 (2.5)	4 (3.3)
Student	4 (3.3)	4 (3.3)	0 (0.0)	8 (6.7)
Gov. employee	21 (17.5)	25 (20.8)	11 (9.2)	35 (29.2)
Farmer	7 (5.8)	10 (8.3)	4 (3.3)	13 (76.5)
House wife	1 (0.8)	13 (10.8)	3 (2.5)	11 (10.8)
Unspecified	1 (0.8)	2 (1.7)	0 (0.0)	3 (2.5)

DISCUSSION:

Hepatitis B virus exists in eight different genotypes (A-H) and its prevalence differs with differs by geography and ethnicity. Ten different studies conducted at different regions of Pakistan showed that the most prevalent HBV genotype in Pakistan is genotype D with overall prevalence rate of 63.71% followed by genotype A (10.036%), genotype C (7.55%) and genotype B (5.335%) while un typable and mixed genotypes were 2.377% and 9.931%, respectively[7].

The lack of knowledge is one explanation why only 16.5% of participants expressed willingness to take antiviral agents that are safe in pregnancy to prevent MTCT of HBV. This result is consistent with another survey conducted in China in 2011 that found 11.7% of obstetrics and gynecology staff thought antiviral therapy was important during pregnancy[8]. These data are also consistent with a recent prospective study at SYSU of telbivudine treatment during pregnancy to prevent HBV MTCT where only 29.9% of pregnant women with high HBV DNA levels voluntarily accepted antiviral therapy[9]. In order to increase the willingness of women to take antivirals during pregnancy, further work is needed to educate women about both the long-term consequences of HBV infection in an infant and about prevention of MTCT of HBV[10].

CONCLUSION:

It is concluded that prevalence of HBV and HCV infections among CLD patients in this study is high. Dental extraction at health facilities has 2.95-time association of acquisition of HCV infection than those who do not have history of dental extraction.

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