

Prevalence of Hepatitis-D Virus Infection in Hepatitis B Surface Antigen-Positive Children in Southern Punjab

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ABSTRACT

Background: Hepatitis D virus (H D V) is a defective R N A Virus dependent on Hepatitis B virus (H B V) infection for its replication and expression. It is known that co-existent infection with HDV tends to aggravate the course of HBV-associated liver disease. This study was carried out to determine the sero- prevalence of HDV among Hepatitis B Surface antigen (HBSAg) Positive children visiting the Nishtar Medical Centre Jampur (Rajapur)

Study Design: Experimental study

Place and Duration of Study: This study was carried out at Nishtar Medical Centre Jampur (Rajapur) from December2010 to September 2012.

Materials and Methods: 280 children, out of them 175 were male and 105 were female, having HBSAg Positive and visited the Clinic during the above-said period were included in the study.

Results: Effective Preventive measures are the need of hour and Pakistan may be considered as area of highest Prevalence around the globe (JPMA59:434,2009)

Conclusion: Some serious steps should be carried out to lower down the Prevalence rate of Hepatitis B in Southern Punjab.

Key Words: Hepatitis-D, Antigen-Positive, Southern Punjab

INTRODUCTION

Hepatitis B virus (HBV) infection is one of the most prevalent public health problem world-Wide (especially in developing countries) Causing 1 Million deaths annually¹. More than 10% Pakistani Populations have HBV infection. Hepatitis D virus (HDV) is a defective RNA virus dependent on HBV infection for its replication and expression^{2,3}. HDV is well-known to induce a spectrum of acute and chronic liver diseases. More than 15 Million patients are infected with HDV and its prevalence in Asia, Italy and western Europe is higher than rest of the world^{4,5}. it appears to be endemic in middle east⁶. Infection by HDV can be caused along with HBV or as a super-infection in chronic HBV⁷. Co- infection may have more severe acute disease and high risk of fulminant Hepatitis. Children having HDV develops chronic form of the disease and in approximately 80% of these individuals chronic Hepatitis D progress to cirrhosis in 5-10 years, another feature of chronic HDV is it can give rise to Hepatocellular carcinoma^{8,11}. Although hepatitis B vaccine is useful in preventing both HBV and HDV, there is no useful effective measure to prevent HDV super infection in HBV carriers. HDV infection is present world -wide in all age groups. But its distribution is not uniform and general pattern of distribution corresponds to the prevalence of HBV infection. Mumtaz et al noted prevalence of 16.6%

HBSAG positive patients from different areas of Pakistan⁸.

The aim of this study was to estimate the prevalence of hepatitis D in hepatitis B surface antigen positive children visiting the clinic.

MATERIALS AND METHODS

All HBSAg Positive children who visited the Clinic from December2010 to september2012 were included in the study. These children were tested for anti-HDV, HBV DNA and HDV- RNA by PCR technique, HBeAg and Clinical status of Children was evaluated by examination routine biochemical tests and ultrasound. All cases were evaluated for the presence of anti-HDV antibodies using commercially available enzyme-linked immunoabsorbent assay kits.

RESULTS

Total Numbers of children included in the study were 280, comprising of 190 patients from Jampur (Rajan Pur) and 90 Patients were from D.G.Khan. Out of the total children 175 were male and 105 were Female, male to female ratio was 1.6 = 1. These children ranged from 2 to 13 year of age (mean 8.75+3.7). All children were screened for Antibodies to HDV out of which 41 (14.5%) tested positive, Of these 20 Anti HDV positive patients were tested for HDV-RNA by PCR out of which 3 (15%) were positive. All the 280 children were screened for HBe Ag, out of which 18 (4.5%) were

positive All the 280 children were tested for HBV-DNA by PCR, out of which 60 Children were positive for virus (20.5%). The frequency of positive HDV Antibody was 35 (18.5%) from (Rajanpur) and 6 (6.4%) from DG Khan District. This reflects high Prevalence of hepatitis D in Rajanpur and DG Khan (southeast) Punjab. Effective Preventive measures are the need of hour and Pakistan may be considered as area of highest Prevalence around the globe (JPMA59:434,2009).

Table No.1: Prevalence of HDV in Children Visiting the clinic According to their Sex

Sex	Total Patients	HDVAB+VE	Percentage
Male	175	28	16%
Female	105	13	12.5%

Table No.2: Prevalence of HDV in Children visiting the Clinic From Different Area.

Area	HDV+VE Children	Total Children	Percentage
Rajanpur Urban	2	30	6.6%
Rajanpur Rural	14	98	14.2%
Rajanpur Tribal Area	19	62	30.6%
D.G khan Urban	0	8	0%
D.G khan Rural	4	60	6.1%
D.G khan Tribal Area	2	22	11%

Table No.3: Prevalence of anti-HDV according to the age and sex of children studied

Age	Male	Female	Total	anti hdv in male	Anti HDV in Female
2-5 years	30	18	48	2 (6.6%)	0
6-9 years	71	41	112	7 (11.2%)	3 (7.5%)
10-13 years	74	46	120	22 (29.6%)	7 (15.2%)

DISCUSSION

We conducted the study in 280 children who visited the clinic from Dec.2010 to September 2012 and found the Prevalence of Anti HDV in (14.6%) which indicates high Prevalence of HDV in southeast Punjab. The Prevalence rate in male children is higher than Female which is not much. At the same time the Prevalence rate of Anti HDV in Rural especially in children belonging to the Tribal areas is much higher than the rural and urban areas of both Districts. A Prevalence of 25% noted in Tribal areas V/S 10.5% in Rural and 5.2% in urban areas, that may be due to high Prevalence

of hepatitis D in tribal area as compared to the urban and rural areas, we also noted relatively less Prevalence of Hepatitis D antibodies in younger children 2-5 years of age as compared to the older age group 10-13 years of age. A total 24% Prevalence rate is noted in Later age group children (10-13 years) as compared to 9% (6-9 years old) and only 4% anti HDV seen in (2-5 years) old children this indicates high Prevalence in later age group that may be due to super infection of HDV chronic carriers.

Although there are almost no studies especially in children available so for world-wide assuming that there is very low Prevalence of Anti-HDV in children but our study indicates a quite alarming situation in southeast Punjab particularly in Rajanpur District especially in Tribal and rural area of the District. Gholam reza Roshandel et al noted a Prevalence of (5.8%) in northeast Iran [9]. Mumtaz et al noted a Prevalence of 16.6% in HBSAg+ve Patients from different areas of Pakistan. Rezvan et al in 1990 detected HDV antibodies in 2.5% asymptomatic carriers [10]. Aminiet al in 1993 reported the same prevalence (2.4%) of HDV infection [11]. In 2000 Hassan Jani reported HDV Positivity in 2% HBV carriers [12]. Alavia et al have reported 5.07% HDV Positivity among HBSAg +ve subjects in Iran [13]. Bader Zubari et al noted Prevalence of (58.6%) from anterior Sindh [14]. i.e Jacobabad and Balochistan, the areas adjacent to Southeast Punjab. It has been noted that there is overall decline in Hepatitis D virus cases, because of decline in Hepatitis B case due to vaccination. But our study showed overall high Prevalence in southeast Punjab

CONCLUSION

The high Prevalence of Hepatitis D virus infection in Rajanpur and D.G. Khan Districts, southeast Punjab indicated that it is the need of hour that serious campaign of vaccine against Hepatitis B should be launched and Public awareness program against Hepatitis B and D should be carried out, because as there is no treatment so far available against Hepatitis D and no other preventive measures except Hepatitis B vaccine is available. So some serious steps should be carried out to lower down the Prevalence rate in southeast Punjab.

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