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Research Article

Sexual Transmission in HBV

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Abstract

Introduction: Chronic Hepatitis B Virus (HBV) infection is responsible for causing cirrhosis in significant number of cases for whom liver transplantation is the only definitive treatment which in developing country like India, is not easily accessible due to limited centres and specialists for the same. There are various routes of transmission for HBV, many of them are well documented but certain like sexual one requires more in depth researches for determining its exact contribution in transmission.

Aims and Objectives: To determine the sexual transmission in HBV confirmed patients on HbsAg and HBV DNA quantitative viral load testing.

Materials & Methods: It was prospective study conducted at Department of Medical Gastroenterology, Post Graduate Institute of Medical Sciences (PGIMS), Rohtak, over a period of eleven years from 1st January, 2014 to 31st December, 2024. During which 8000 confirmed patients of Chronic hepatitis B who reported in department in last eleven years duration were enrolled in the study. Out of this total pool of 8000 patients, till date 5000 patient got tested HbsAg and HBV DNA quantitative test in their spouses for ruling out HBV infection. Hence data pertaining to them was used in final analysis.

Results: Out of the 5000 patients in whom spouses were checked for HBV infection, 362 (7.24%) were found to be HBV positive and 4638 (92.76%) were HBV negative.

Conclusion: The sexual route cannot be missed as an important route, especially in those who have other co-risk factors.

Keywords: Hepatitis B virus, Sexual transmission, HBV DNA Quantitative test, HbsAg, Spouses

Introduction

The main routes of HBV transmission mainly include percutaneous or per mucosal exposure to HBV-containing body fluids. The most important source of infection is blood [1]. HBV transmission occurs through different kind of human contact, including vertical transmission from mother to newborn, sexual contact, close household contact, needle sharing, and occupational exposure (horizontal transmission) [2,3]. HBV is efficiently transmitted by sexual contact [2]. The main risk factors are unprotected sex with an HBV-infected partner, mainly unvaccinated MSM and heterosexual individuals with multiple sex partners or contact with sex workers [3]. MSM have long been known to have high rates of Sexually Transmitted Infections (STIs) [4] and show higher seroprevalence rates of HBV-related markers than the general population [5]. Heterosexual transmission is still important, as shown by the 40% transmission rate to nonimmune partners of patients with acute or chronic HBV infection [6,7] and is positively correlated with

increasing numbers of current and lifetime heterosexual partners [8,9]. Care providers should take precautions like not sharing items like razorblades, toothbrushes, nail clippers and properly covering open cuts or wounds. Health care workers who are frequently exposed to blood products and tissues like pathologist, dentist or clinical departments are at risk of developing HCV infection. The other source of infection includes parenteral transmission from medical or dental procedures, intranasal cocaine use, tattooing or body piercing. The Centers for Disease Control and Prevention (CDC) guidelines lays stress on five strategies for the prevention and control of STIs [10] which include change the sexual behaviour that can increase the risk of STIs. The other aspect is providing information on sexual behaviour that can increase the risk of STIs. In addition, adolescents and young adults should be made aware that some of the information on protection against STIs may be inaccurate [10]. Other aspect are correcting misinformation on protection against STIs [11] and refraining from sexual contact, which includes oral, vaginal, and anal sex [10].

Aims and Objectives

To determine the sexual transmission in HBV confirmed patients on HbsAg and HBV DNA quantitative viral load testing.

Material and Methods

It was prospective study conducted at Department of Medical Gastroenterology, Post Graduate Institute of Medical Sciences (PGIMS), Rohtak, over a period of eleven years from 1st January, 2014 to 31st December, 2024. During which 8000 confirmed patients of Chronic hepatitis B who reported in department in last eleven years duration were enrolled in the study. Out of this total pool of 8000 patients, till date 5000 patient got tested HbsAg and HBV DNA quantitative test in their spouses for ruling out HBV infection. Hence data pertaining to them was used in final analysis.

Statistical Analysis

All the data was entered in Microsoft Excel and was analysed using SPSS 15.0 version.

Observations & Results

Out of 8000 patients of Chronic hepatitis B who reported in department in last eleven years duration, till date 5000 patients who got their spouses checked for HbsAg and HBV DNA quantitative test were included in the study. In this final pool of 5000 patients, there was male predominance i.e. 3250 (65%) while females were only 1750 (35%). Majority of patients belonged to poor socio-economic status and had rural background i.e. 3300 patients (66%). The maximum number of patients belonged to younger age group i.e. from 21-40 yrs of age group i.e. 2650 (53%) with less representation at extreme of age group. Out of the 5000 patients in whom spouses were checked for HCV infection, 362 (7.24%) were found to be HBV positive and 4638 (92.76%) were HBV negative. None of these 362 positive spouses admitted for polygamous relationship or intravenous drug abuse and out of these only six patients had HBV & HCV co-infection (Table 1-3).

Table 1: Showing Sex, Geographical and Age Distribution in HBV Study Group.

Patients	Male	Female	Rural	Urban	0-20	21-40 yrs	41-60 yrs	61-80 yrs
5000	3250	1750	3300	1700	250	2650	1500	600
-100%	-65%	-35%	-66%	-34%	-5%	-53%	-30%	-12%

Table 2: Showing HBV Positivity in Spouses in Study Group.

Total Number of Patients	HBV Positive Spouse	HBV Negative Spouse
5000	362 (7.24%)	4638 (92.76%)

Table 3: Showing Parameters in HBV Positive Spouses in Study Group.

HBV Positive Spouse	Polygamous Relationship	Intravenous Drug Abuser	HBV-HCV Co-Infection
362	0 (0%)	0 (0%)	6 (1.65%)

Discussion

HBV which has been detected in vaginal secretions, saliva and semen, is 50 to 100 times easier to transmit sexually than HIV. Oral and anal sex, in heterosexual or homosexual can transmit the virus. HBV is not transmitted by holding hands, hugging, dry kissing on the lips but chance of transmission with deep kissing probably exists and the risk increases if one partner wears orthodontic braces or has open cuts or sores in the mouth. The likelihood of becoming infected with HBV increases with the number of sexual partners, making promiscuous individuals more likely to get HBV. The proportion of sexually transmitted HBV infections is dependent on the country of birth, as in HBV-endemic countries, most HBV transmission occurs perinatally or during childhood (i.e., not via sexual transmission). In countries with intermediate and high HBV endemicity, HBV transmission mainly occurs during infancy and early childhood through vertical or horizontal transmission. In one estimate, approximately 90% of infections occur before 10 years of age, leaving many adults immune from infection later in life [12]. National Health and Nutrition Examination Survey (NHANES) used public data files for analysis and attributed 12.6% of the chronic

HBV due to sexual transmission but its contribution in acute hepatitis B was significantly high to the tune of 38.2% [13]. One Chinese study highlighted sexual transmission being the predominant route of acute HBV infection, especially for men [14]. In our department due to implementation of Jeevan Rekha Project & National Viral Hepatitis Control Program (NVHCP) through which there is provision of total free treatment including viral load and other routine tests, drugs, endoscopy, fibroscan, indoor admission in wards etc. Moreover, as a well-planned policy, hepatitis B patients are given free consultation and treatment on daily basis without any waiting period.

The appointment of dedicated team which included consultant, peer view support, pharmacist and data operator played a vital role in making our model treatment centre as one of the high flow centres in India where on daily basis around thirty- five new and old patients of HBV come for consultation. There is lot of thrust on counselling which includes testing especially of the spouses and family members of HBV patients. This team effort has led to good social bonding with the patients who developed full faith in the treating team. This familial bonding led to overcome the hurdle of illiteracy and rural background in majority of patients who were treated for HBV. Thus, we were able to convince majority of patients for getting tested their spouses for HBV infection. The prevalence of 7.24% of sexual transmission as seen in our study is almost in alignment with previous studies of its role in chronic hepatitis B patients. Our study pool was also exclusively of chronic hepatitis B. Heterosexual transmission of HBV occurs in only <5% when parenteral risk exposures is excluded. The sexual issue is very delicate and ethical issue between the couple in which one is HBV reactive. We have learnt in last many years by interacting with such couples, there are lots of apprehension and fear in them regarding transmission of HBV by sexual route. Sometimes, it has led to denial of sexual relationship between the couple and even in some cases temporary or permanent separation by way of divorce.

It is difficult to confirm that all these were due to sexual transmission or there was contribution of factor of close contact also. The point is that whether there is any loss in advising barrier contraception during HBV treatment. A good bond between the treating team and the HBV couple is must for relieving all the fears and issues, especially sexual one. A prescence of female staff in treating team is beneficial, as female patient share their problems more comfortably with the same sex member of the treating team. In our team, keeping this in mind we have trained female nursing officers who perform Fibroscan, assist in doing endoscopy and do even psychological counselling of HBV positive females or whose husband are HBV positive. Our pharmacist is also female and not only distribute drugs but also do additional psychotherapy of patients. It is frequently seen that patient and their relatives due to strong fear of HBV infection, repeatedly try to allay their fears by asking same question to different team members, thus, correct and same answers have to be given by all team members, for mental solace of patient and other family members. This Malhotra's Ashi-Angel approach by our team has brought fruitful result which is evidenced by extra-ordinary compliance in our treated patients [15].

Conclusion

The sexual route cannot be missed as an important route, especially in acute hepatitis B patients and those who have other co-risk factors. It is an ethical echo also, thus has to be dealt very cautiously in patient and corresponding spouse very softly and intelligently.

Limitation of Study

In the present study, majority of patients may have denied polygamous sexual relationships due to personal inhibition and it may have led to exact interpretation of result because such group of patients may have been labelled to be having other route of infection instead of sexual one.

Conflict of Interest

The authors declare that there was no conflict of interest and no funding was taken from any source to conduct this research.

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