

Epidemiology of Viral Hepatitis and Liver Diseases in India

Pradeep Bhaumik

ABSTRACT

Diverse Indian population provides an excellent opportunity to study the prevalence and feature of hepatitis virus for understanding viral evaluation and viral pathogenesis. India is in intermediate zone of pathogenesis of hepatitis B (2-5%), and India is having around 40 million hepatitis B virus (HBV) carriers. A wide variation in prevalence of hepatitis B is observed from region to region and community to community. The prevalence of HBV is higher among tribal population, than nontribal.

Population prevalence of hepatitis C virus (HCV) infection in India is 1%. Prevalence study among blood donors may reflect population prevalence. Hemodialysis increases the possibility of blood borne viral infection. Higher prevalence of HBV among tribal population is of paramount importance from public health point of view and hepatitis B vaccination.

Keywords: Hepatitis B virus, Hepatitis C virus, Prevalence, Tribal population, Blood donors.

How to cite this article: Bhaumik P. Epidemiology of Viral Hepatitis and Liver Diseases in India. Euroasian J Hepato-Gastroenterol 2015;5(1):34-36.

Source of support: Nil

Conflict of interest: None

INTRODUCTION

Diverse Indian population provides an excellent opportunity to study the prevalence and features of hepatitis viruses for understanding viral evolution and disease pathogenesis. Though India has diverse community group, there is paucity of studies at community level. It has been observed that among aborigine groups, hepatitis B virus (HBV) prevalence is much higher than other people. However, all the aborigine groups and ethnic group have not been evaluated extensively. In this mini-review, we would try to accumulate the available data in the literature. Prevalence study among the voluntary blood donors has also been included in our database. However, it reflects only a section of people.

HEPATITIS B IN COMMUNITY

Among the South-East Asian countries, India is in intermediate zone of prevalence (2 to 5%).¹ National Center for Disease Control (NCDC), India, reported a 3.7% point prevalence, i.e. over 40 million HBV carriers in India.² A wide variation in prevalence of hepatitis B is observed from region to region and community to community. Hepatitis B virus prevalence at community level in Tripura (North-East region of India) is 3.6% (95% CI 3.14-4.06), West Bengal

2.97%,³ Tamil Nadu 5.7% (95% CI 4.6-6.8),⁴ Northern India 2.1%.⁵

HEPATITIS B AMONG TRIBAL POPULATION

The prevalence rate of HBV is higher among tribal than nontribal population. In a meta-analysis by Batham et al reported that the prevalence of HBV in tribal and non-tribal population is 15.9% (95% CI 11.4-20.4) and 2.4% (95% CI 2.2-2.7) respectively.⁶ The prevalence of HBV differs in different tribal community in India.

HEPATITIS C IN INDIA

According to NCDC, the population prevalence of HCV infection in India is 1%.² In a community-based study, Chowdhury A from West Bengal reported 0.87% of HCV prevalence.⁷ In Andhra Pradesh, 2.02% of HCV seroprevalence has been found in Lambada community.⁸

PREVALENCE OF HEPATITIS B AND C AMONG BLOOD DONORS IN INDIA

Prevalence of hepatitis B and C among voluntary blood donors (Table 1) in different parts of India has been shown in following Table:

Department of Gastroenterology, Agartala Government Medical College, Agartala, Tripura, India

Address reprint requests to: Pradeep Bhaumik, Associate Professor, Department of Gastroenterology, Agartala Government Medical College; President, Hepatitis Foundation of Tripura, Agartala, Tripura, India, Phone: 91-9436120250, e-mail: pradeepagt@yahoo.com

Place	HBV (%)	HCV (%)	Reference
Tripura	1.2	0.109	Unpublished data
Andhra Pradesh	1.41	0.84	Bhawani Y et al (2010)
Ahmedabad	0.977	0.108	Shah N et al (2013)
Bhopal	2.9	0.57	Sawke N et al (2010)
Maharashtra	1.09	0.74	Purushottam A et al (2012)
New Delhi	0.2	0.7	Pathak S et al (2013)
New Delhi		1.57	Jain A et al (2003)
Patiala		0.88	Bagga PK et al (2007)
New Delhi	1.66	0.65	Gupta R et al (2011)
Chandigarh	1.7	0.8	Kaur G et al (2010)
Lucknow	1.67	0.49	Chandra T et al (2014)
Uttar Pradesh	1.5	0.8	Agrawal VK et al (2012)
Uttarakhand	1.2	0.9	Negi G et al (2014)
East Delhi	1.8	0.5	Singh B et al (2004)
Uttar Pradesh	1.96	0.85	Chandra T et al (2009)
Kerala	1.5	0.4	Anjali H et al (2012)
Kolkata	1.4	0.59	Karmakar PR et al (2014)

PREVALENCE OF HEPATITIS B AND C AMONG HEMODIALYSIS PATIENTS

It has been reported that hemodialysis increases the possibility of blood borne viral infection but the prevalence is variable from hemodialysis from center to center and also from region to region and country to country, and high-cost hemodialysis center *vs* low-cost hemodialysis center. It is not well understood whether this variability has got any relationship with the basic prevalence of the disease in the community.

In most of the study, HBV infection among hemodialysis patients was between 4 and 11% and HCV infection was between 8 and 12%.

In India, reported study of HBV and HCV infection among hemodialysis patient is variable. In Tripura, it is found that the prevalence of hepatitis B and C among hemodialysis patients is 7.3 and 12.1% respectively, and 1.2% patients were coinfecting with both viruses.

Reddy et al have reported that, among hemodialysis patients, 5.9% were HCV-positive while 1.4% patients had HBV infection and 3.7% had coinfection with HBV and HCV.

We have reported that among the patients of chronic kidney disease, renal transplant or hemodialysis, HBV, HCV and coinfection of both viruses were 7, 46, and 37.1% respectively.⁹

CONCLUSION

It has been observed that prevalence of HBV at community level in India is highly variable with a higher prevalence

Table 1: Prevalence of hepatitis B among tribal groups of India

State	Tribe	HBsAg (%)	Reference
Tripura	Chakma	11.41	Unpublished data
	Reang	7.69	
	Noatia	6.09	
	Murasing	5.15	
	Onges	31	
Andaman and Nicobar Islands	Nicobarese	23.3	Murhekar MV et al (2000)
	Shompens	37.8	
	Jarawas	65.6	
	Baiga	4.4	
	Halbas	3	
Madhya Pradesh	Gonds	13	Murhekar MV et al (2003)
	Kawars	10.3	
	Oraons	8.5	
	Bhils	18.4	
	Bhilals	18.9	
	Barelas	17.7	
	Tribes of Kolli Hills	1.86	
	Ladakhis	9.72	
	Lambada	5.2	
	Tribal	8.5	
Maharashtra	Raj Gond	28.03	Mukharjee M et al (1990)
	Kolam	14.15	
	Naik Gond	9.52	
Jharkhand	Pradhan	6.98	Ghosh S et al (2010)
	Paharia	2	

in Tribal population than nontribal population. Higher prevalence of HBV among tribal population is of paramount importance from public health point of view and early intervention by hepatitis B vaccination will reduce the disease burden among tribal population in India. But, in hemodialysis patients, prevalence of HBV and HCV is much higher than community level. In a community where HBV and HCV infection prevalence is higher needs adoption of mass hepatitis B vaccination and further precautionary measures to reduce mortality and morbidity among chronic kidney disease patients. Prevalence among blood donors can be a ready reference of community status and impact of preventive measures.

REFERENCES

1. Hepatitis B. Fact sheets WHO. Available at: <http://www.who.int/mediacentre/factsheets/fs204/en>.

2. National Centre for Disease Control India. News letter 2014 Jan-Mar;3(1).
3. Chowdhury A. Community-based epidemiology of hepatitis B virus infection in West Bengal, India: prevalence of hepatitis B e antigen negative infection and associated viral variants. *J Gastroenterol Hepatol* 2005 Nov;20(11):1712-1720.
4. Kurien T, Thyagarajan SP, Jeyaseelan L, et al. Hepatitis B Infection in Tamil Nadu, India. *Ind J Med Res* 2005 May;121(5):670-675.
5. Singh H, Aggarwal R, Singh RL, Naik SR, Naik S. Frequency of infection by hepatitis B virus and its surface mutants in a northern Indian population. *Ind J Gastroenterol* 2003;22(4):132-137.
6. Batham A, Gupta MA, Rastogi P, et al. Calculating prevalence of hepatitis B in India: using population weights to look for publication bias in conventional meta-analysis. *Ind J Pediatr* 2009;76(12):1247-1257.
7. Chowdhury A, Santra A, Chaudhuri S, Dhali GK, Chaudhuri S, Maity SG, et al. Hepatitis C virus infection in the general population: a community-based study in West Bengal, India. *Hepatology* 2003 Apr;37(4):802-809.
8. Chandra M, Khaja MN, Farees N, Poduri CD, Hussain MM, Aejaz Habeeb M, et al. Prevalence, risk factors and genotype distribution of HCV and HBV infection in the tribal population: a community based study in south India. *Trop Gastroenterol* 2003 Oct-Dec;24(4):193-195.
9. Bhaumik P, Debnath K. Prevalence of hepatitis B and C among hemodialysis patients of Tripura, India. *Euroasian J Hepato-Gastroenterol* 2012;2(1):10-13.