



Research Article

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NULL SEROPREVALENCE OF HBSAG CARRIER STATE AMONG KURICHIYA TRIBAL COMMUNITY AROUND KANNUR, KERALA, INDIA

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ABSTRACT

Hepatitis B virus infection is one of the major public health concern, with about 2 billion people infected globally and >350 million chronic carriers of the virus, of which >40 million are from India. India falls under intermediate zone of endemicity with a carrier rate anywhere between 2-4%. Prevalence of disease is much higher among tribal groups and the cause for this is geographical isolation, culture, apathy towards health seeking behavior. Aim of the study was to determine the prevalence of Hepatitis carrier rate. We conducted a study to derive HBsAg determination among kurichiya tribal group in and around Kannur, northern Kerala, India. ELISA method was used to determine HBsAg from serum samples of the study group. There was null HBsAg seropositivity among the kurichiya community. This community is considered as the highly sophisticated community out of 63 other communities. Kurichiya's are highly known for maintaining antiseptic and sterilization procedures. We found that the risk factors for transmission of Hepatitis are negligible. The null positivity of HBsAg carrier among the tribes gives insight into the Kurichiya community about their lifestyles and practices. Significance of folk medicine needs to be extensively studied in a systematic manner.

Keywords: HBsAg, Kurichiya tribes, Kannavam

INTRODUCTION

Hepatitis B virus infection is one of the major diseases of mankind, with about 2 billion people infected globally and >350 million chronic carriers of the virus, of which >40 million are from India. India falls under intermediate zone of endemicity with a carrier rate anywhere between 2-4%. However the prevalence of HBV infection among tribal communities is much higher varying from 10-30%.¹ Certain features were attributed for higher prevalence of HBV infection among tribes like primitive traits, distinctive culture, geographical isolation, socio-economic backwardness, myths and apathy towards health seeking behavior^{1,2}.

Tribes accounts for 84million people which represent 8.1% of the country's population and are inhabited in all states. Few studies were undertaken in Andaman and Nicobar regions, northeastern states and Tamilnadu but community based studies are less³. Tribal communities are understudied with respect to their geographic location, ethnicity, customs and culture. Up to our knowledge none of the study was done in Kerala, India. Hence this study was taken up to report the prevalence of HBsAg carrier state among tribal community residing at the outskirts of Kannur, Northern Kerala, India.

MATERIALS AND METHODS

Study design and setting -This is an observational cross-sectional study conducted in November 2014 – February 2015 at Department of Microbiology Kannur Medical College, Kannur.

Ethical consideration- this study was approved by the institutional ethical review board. The same was informed to the regional tribal officer, Kannur. Written informed consent was obtained from all the participants after explaining the process of the study in their own language.

Study participants and sampling

Scheduled tribes in Kerala with a population of 3.4 lakhs constitute 1.14% of total population as per 2001 census. Tribal population in Kerala lives in scattered manner. There are seven Integrated Tribal Development Project Offices (ITDP) serving 1.76lakh tribes and nine Tribal Development offices (TDO) for the remaining tribal population. ITDP, Kannur has got four Blocks (Irikkur, Iritty, Kuthuparamba and Peravoor) and eighteen Panchayath wards serving 164 different tribal settlements. These settlements are divisional under Kannavam and Aaralam Tribal Extension Officers. Out of 36 tribal community Kurichiyas and Paniyas are the dominant tribes, and these communities were selected for the study. Kurichiyas divisioned under Kannavam, Kuthuparamba and Peravoor was selected as study area.

Study area is 12 miles from State highway, its geographical coordinates are: 11° 50' 0" North, 75° 40' 0" East. Their numerical population approximately estimated as 1000 people per settlement. This settlement characteristically homogeneous. The climate over the area is hot humid tropical climate. This group is considered as the Hindu Brahmin and are highly conservative, they can never consume outside food other than there homemade preparations. Agriculture is there main occupation. They live in thatched house and few got pukka

house. Garbage disposal was mainly land filling and burning of the thrash. Their attire varies according to their economic status but most of them use cotton based dressings to cover their body. Most of them use footwear.

With the prevalence rate of 20%, as per the previous studies⁴ and CI 95%, sample size was calculated accordingly as n- 256.

256 adult people (aged between 17-85 years) both sexes were included as participants. Children below 16 years were excluded from the study. Also persons immunized with HBV vaccination and people with blood dyscrasias were excluded from the study.

Data Collection- Structured questionnaire was prepared based on previous studies and considering expert advice. It included demographic data, education-economic status, personal history, socio-cultural habits, signs and symptoms suggestive of hepatitis and regarding risk factors for transmission of infection.^{2, 4, 5} With the help of the tribal volunteers and medico social worker of our college, the group was approached on the specified days and importance of the study was narrated. After gaining their confidence participants were included in the study. Sexual and behavioral risk factor was asked separately for males and females. Sexual mode of transmission was ascertained by association with number of sexual partners, extramarital sex, premarital sex, visit to commercial sex workers, homosexuality, use of condoms and HBV-positive married couples. Risk of horizontal transmission was ascertained by determining the association with blood and blood products transfusion, tattooing, ear pricking, dental extraction, number of injections in the recent past and use of disposable needles^{4, 6}.

Microbiological examination – Of the total participants, 240 participants agreed to give blood sample. Venous blood was drawn from 240 tribal people and the serum was separated at the site, preserved, transported to the laboratory and stored at -20°C till further analysis. Viral markers HBsAg was tested by ELIFA kits (Mini VIDAS, Biomereux, UK)⁶.

RESULTS

Of the 240 participants, 86 were males and 154 were females. Youngest being 17 years and eldest being 80 years. As can be observed in table 1, Mean age was 42.61 years (SD 15.99 years). Seventy percent of the adults were married and no couples were cohabitating. 21% had completed their secondary schooling and 19% had completed their graduation. 25% of study participants gave alcohol history. Socio economic status and risk factors is described through graphs. Mean height was 153.54 cms, mean weight was 48.64 kgs. 18% gave history of jaundice, were all treated with local herbal medicines, none received any medical treatment. There was no mortality.

On microbiological analysis there was no positivity for HBsAg, suggesting no carrier status among the study population.

Data Analysis: All the results are expressed as frequencies, percentage, graphs and charts. Descriptive data are analyzed with Chi square test and Fisher's Exact test. P value <0.05 is considered as statistically significant.

DISCUSSION

Article 342 of our constitution describes scheduled tribes (STs) based on certain characteristics like primitive traits, distinctive culture, shyness with public, geographical isolation and socio-economic backwardness. STs accounts for 84 million people, representing 8.1% of the country's population and inhabit in

almost all states. In Kerala STs accounts for 1.14% of the total population and most of them are forest dwellers. Their lifestyle is simple, influenced by cultural and traditional practices.

In our study majority of the study participants were females 31.2% between the ages of 26-35 years which correlates with 2011 census statistics showing female predominance in the area. Elderly persons >65 years was 10.4% of highest age of 80 years. Larger population were married (72.2%), and there were no cohabitating relationships. Having two/three wives is common among tribal groups and considered as royalty. Only two men had dual wives in the entire community.

Only 20% of the population had completed their high school, suggesting scarcity of schools and awareness regarding education. Major population practiced agriculture as their occupation. Also fishing/ honey hoarding/ boating are the other common occupation.

Risk factors for transmission of hepatitis did not dominate in this group, rituals of blood sucking/ bloodletting and scarification are never practiced. Though tattooing and body pricks prevail, incidences of symptoms are less common among them. This study tells us that the tribes follow precautions to cut down the disease transmission not only blood borne, but also covers other routes of infection. Importance of sterilization and aseptic precautions are well known and practiced regularly.

Tribal health is one of the marker of country's progression. Chronic diseases are of prime importance⁷. Hepatitis B infection poses a huge burden on tribal health. The possible routes of transmission of HBV among tribes are perinatal transmission, accidental inoculation of contaminated blood during cultural practices like tattooing and nose/ear pricking, polygamy or multiple sexual partners, horizontal transmission through close personal contacts or through blood and body fluid contamination.⁸ Carrier stage among tribes is found to be high varying anywhere from 8% to 21%, but community related risk yet not clarified in any of the groups by previous studies.⁴

In our study none turned out to be positive for HBsAg, which is contradictory to the previous studies.^{4, 5} Although none of the previous studies give exact community prevalence, few areas have low prevalence varying from 0.1-1%.^{2, 3} The null positivity of HBsAg carrier among the study tribes gives insight into the Kurichiya community about their lifestyles and practices. Maji Jose et al carried out a study on the Wayanad tribal population about their ethno medicinal practices on medical problems and could reveal their rich knowledge on herbal remedies⁹. Kuru Suresh et al reported 108 species of plants belonging to 59 families for medicinal use. He quoted that Malayali tribes of Kollihills used plants to cure diseases like fever, cough, leukemia, asthma, tooth decay, diabetes, infertility, jaundice, ear infections and inflammations. They also had medications for non healing wounds, dog bite and snake bite¹⁰.

Kurichiyas are disciplined genre are known as "kings of forest" they are considered as highly cultured people. Pre marital sex, extra marital sex, multiple sex partners are highly condemned. Rituals done for body prick (ear/nose) is appreciable as the practices of asepsis are known to the folklore and instruments are never reused. Moreover folklore uses herbal medicines for jaundiced persons. Diseases diagnosed based on traditional knowledge and disease is classified and treated respectively. Our study didn't have the scope to derive methods related to diagnosis and treatment by traditional methods, data regarding these practices are discrete. Herbal medicinal effect in eradicating HBV carrier stage yet to be studied thoroughly.

Table 1: Socio- demographics of tribal population

Demographic characteristics	Male	Female	Percent
Age (in years)			
15-25	11.6%	14.3%	13.3%
26-35	27.9%	31.2%	30%
36-45	27.9%	18.2%	21.7%
46-55	14%	13%	13.3%
56-65	7%	13%	10.8%
>65	11.6%	10.4%	10.8%
Marital status			
Never married			12.5%
Married			72.2%
Separated			1.1%
Divorced			0
Widow			15.2%
Cohabiting			0
Education			
No formal schooling			26%
<Primary			9%
Primary completed			20.3%
Secondary complete			21.1%
High school			19.5%
College/graduation			3.3%
Post graduation			0
Occupation			
Public sector			4.1%
Private sector			8.9%
Self employment			49%
Student			2.4%
Home maker			25%
Retired			0.8%
Unemployed			21.1%
Per capita(B G Prasad classification)			
Upper high			4.1%
High			11.4%
Upper Middle			22.0
Lower middle			26.0
Poor			34.1
Alcohol intake			
Yes			25%
No			75%

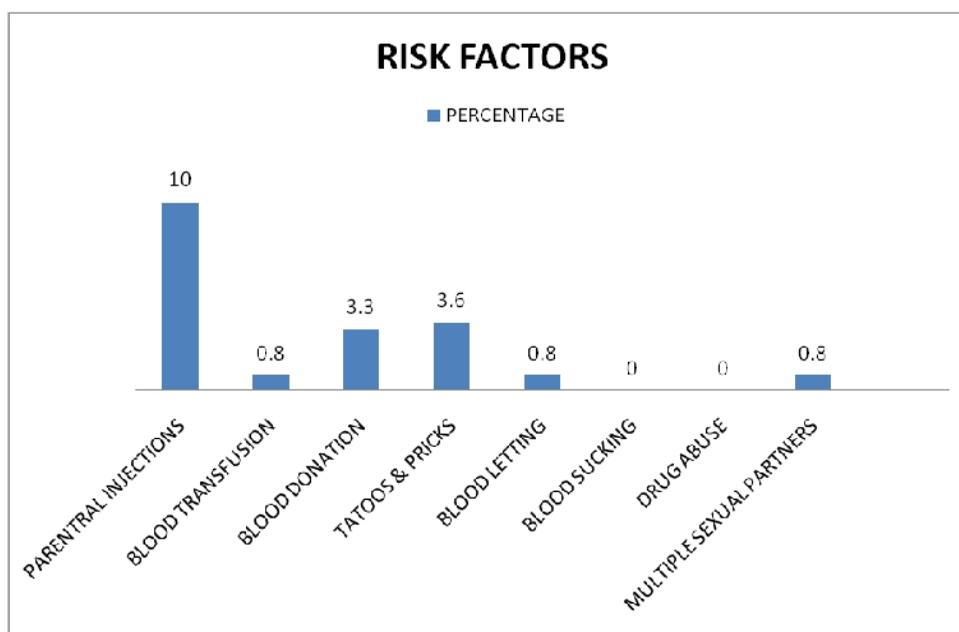


Figure 1: Risk factors

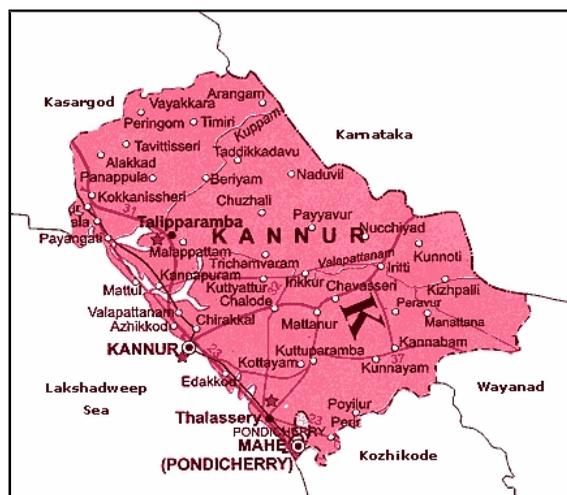


Figure 2: Geographical map of study area

Source: <http://www.indialine.com/travel/kerala/kannur/guide.html>¹⁴.

Traditional knowledge practitioners played a sole role in treating diseases/ailments using their passed on knowledge from elders. Oral narration and identification of herbs are taught to the family members. They grew the medicinal plants, and seasonal herbs were also collected from selected area of the forest. It must be noted that all the medicines are given along with fresh milk and fresh honey. Significance of folk medicine needs to be extensively studied in a systematic manner.

On contrary, other possibilities for negativity are occult hepatitis – undetectable HBsAg, long-term non replicative phase, occurrence of escape mutants interfering in surface antigen synthesis^{11, 12}. In some geological areas HBsAg carrier state is too low and missed out cases can be recognized by the detection of anti HBe antibodies (isolated anti HBe). Due to economic constraints we couldn't check anti HBe antibodies and viral DNA copies.

Routinely used serological markers do not rule out occult hepatitis and ongoing hepatitis. It has to emphasized in low seronegativity area, application of molecular methods for detection of HBV DNA¹³ and anti HBe antibodies should be included as screening methods.

CONCLUSION

The null positivity of HBsAg carrier among the tribes gives insight into the Kurhiya community about their lifestyles and practices. It has to emphasized that, in low seronegativity area, application of molecular methods for detection of HBV DNA and anti HBe antibodies should be included as screening methods. Significance of folk medicine needs to be extensively studied in a systematic manner.

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