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# Inhabitants believe on quack grounds for reemergence of viral hepatitis cases in Lakhimpur district of Assam

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## ABSTRACT

Viral hepatitis becomes a common problem among the community of Assam due to lack of sufficient knowledge regarding safe drinking water and hygiene. An outbreak of hepatitis A virus took place in Kopakchapori village under Boginodi block in lakhimpur district during the month of October, 2013. Blood samples were collected from suspected viral hepatitis patients to determine the aetiological agent of hepatitis virus. 57.14% of the collected samples confirmed HAV IgM Elisa positive. No HEV IgM positive cases were detected. Some typhoid positive patients were also detected in the locality, but no co-infection found. The patients were treated locally by some quack with the use of some herbal thread and herbal bindi (Tikka). Water samples collected from drinking water sources showed presence of higher level of bacilli which is not suitable for domestic purpose. Many unprotected tube wells were observed without brim or platform in all the houses of the locality. Observed poor hygiene as there is no latrine and the people having habit of open air defecation. Water sources used by the community were not only contaminated with HAV but also salmonella species. There is an enormous need to save the community in the Kopakchapori locality for future reinfection by giving awareness camp and adequate action from Public health engineering department.

Key words: Elisa, HAV, HEV, Kopakchapori, Tikka, Typhoid, Viral hepatitis.

# INTRODUCTION

Hepatitis A virus (HAV) is a small, unenveloped, symmetrical RNA virus (picornavirus) [1], well thought-out the major cause of viral hepatitis across the globe. At present viral hepatitis become a serious problem in different parts of Assam. In Assam the number of viral hepatitis cases reported in 2011 was 6,790 where maximum cases were reported from Baksa and Karbi Anglong districts. In 2012, the number of cases increased to 7,071 and the total number of deaths recorded was four [1] where the maximum number of cases was reported from Kamrup (metro) and Baksa districts. In 2013, major outbreaks took place in Kamrup, Lakhimpur & Sivasagar district of Assam. Maximum number of cases of viral hepatitis A and E had been come into noticed. In Sivasagar, 12 were confirmed cases of viral hepatitis and in Lakhimpur 32 confirmed cases of Hepatitis A took place in Bhorpur village affecting approximately 56 patients with a case fatality rate of 4% [2]. A study was carried out in Kopakchapori village to find out the sero-prevalence of aetiological agent of viral hepatitis as well as biochemical examination which helps in early detection and to diminish the secondary spread of infection among the community. The present study

highlighted a most important reason regarding the re emergence of viral hepatitis cases in Lakhimpur district of Assam.

#### MATERIALS AND METHODS

#### A. Sample collection:

a. Blood sample: 2 ml of blood samples were collected from the patients suspected to be afflicted with viral hepatitis for confirmation of aetiology of viral hepatitis. We also collected blood samples from 10% of control patients for detection of salmonella species by Widal test as there is a predominance of typhoid cases in Lakhimpur district over the year [3]. Patient's informed consent was taken before taking the blood samples.

b. Water Sample: Water samples were collected from drinking water source of all the houses of the village in a H2S strip bottle for detection of presence of Sulphur producing bacteria. Beside this we randomly selected 20% of drinking water sources and collected 500ml to 1 L water sample in a sterilized bottle for Most Probable number test.

## **B. HAV IgM Elisa test**

(Company- DSI, Italy Sensitivity- 99 %, Specificity-98.5 % as per instruction): DS-EIA-ANTI-HAV-M-RECOMB kit is an enzyme immune assay for the detection of IgM antibodies to Hepatitis A virus in human Serum/Plasma. The kit allows for detecting acute stage of the infection (2-3 Months) of patients and allows differentiating from the late re-convalescents of Hepatitis A.

## C. HEV IgM Elisa test:

Company- DSI, Italy Sensitivity- 100 %, Specificity-99.5 % as per instruction): - DS-EIA-ANTI-HEV-M-RECOMB kit is an enzyme immune assay for the detection of IgM antibodies to Hepatitis E virus in human Serum/Plasma.

**D. Biochemical test:** Total bilirubin level was determined by using colorimetric method.

#### E. Widal test:

We randomly selected some people (10% of the people in that locality) as control group in that community and collected blood samples for detection of salmonella species through widal test.

#### **Epidemiological Observation:**

The initial case of Acute Jaundice having complained of yellowish eye and dark urine came into noticed in the Kopakchapori locality on 2<sup>nd</sup> October, 2013. The patients were treated locally by some quack with the use of some herbal thread and herbal bindi (Tikka).Many unprotected tube wells were observed without brim or platform in all the houses of the locality. Observed poor sanitation as there is no latrine and the people having habit of open air defecation might be the cause of secondary spread (Figure 2).

#### RESULTS

7 (Seven) Nos. of blood samples were collected on 3/10/2013 from those patients suspected to be affected with viral hepatitis. Serological test was done for detection of Hepatitis A virus IgM antibody among the patients. Out of seven samples 4 samples were found HAV IgM Elisa positive. No HEV IgM positive cases were detected in our study. Some typhoid positive patients were also detected in the locality, but no co-infection found. Among the HAV positive patients yellowish eye and dark urine was common symptoms (Figure 1).15 (Fifteen) nos. of water samples were collected from drinking water sources for H2S test out of which 13 nos of sample showed contamination. Another 5 (Five) nos.of samples were collected for MPN test showed growth of elevated stage of bacilli and unsuitable for domestic use.

The Mean total bilirubin level was found 2.9025 (SD  $\pm$ =2.493) with a mean value of direct bilirubin level =1.0575 (SD $\pm$ =0.8408) and indirect bilirubin level of 1.845 (SD $\pm$ =1.658).

Age groups	Number of viral hepatitis cases	HAV positive cases
1-10	2	2
11-20	4	2
21-30	1	0
31-40	0	0
41-50	0	0
>50	0	0
Sex		
Male	5	2
Female	2	2

Table 1: Age & sex wise distribution of viral hepatitis cases





Figure 2:Epidemiological observation in kopakchapori locality



#### DISCUSSION

During the study, about 60 (sixty) nos of cases with different ailments were treated and necessary medicines provided by the respective medical officer of that area concerned. An significant observation was establish that 70% of the villagers took herbal thread and herbal bindi (Tikka) and they believe that after taking the thread they cured from infection. Knowledge regarding proper sanitation and hygiene was found vary poor among the community.90% of the people in that villagers having habit of open air defecation. Due to this reason water borne diseases like typhoid, cholera and Hepatitis are predominance across the locality in lakhimpur district of Assam [2, 3, 4]. Although as compared to earlier study co-infection of Salmonella hepatitis was not detected in Kopakchapori locality but in our study predominance of Salmonella hepatitis was found in the people of that locality [2].

In this view IEC (awareness camp) done regarding safe drinking water, hygiene and sanitation to the community. Bleaching powder was distributer to purify the drinking water source. Demographic characteristics showed that, 75% of the suspected viral hepatitis cases having symptoms of fever, yellowish eye and dark urine were found HAV IgM positive. All age groups and both the sexes were affected suggesting secondary spread (Table 1).

Biochemical reports revealed that high mean total bilirubin level (hyperbilirubinemia) among the HAV positive patients. There is a correlation between bilirubin levels and hepatitis A patients. But we cannot see the correlation between age (in years) and bilirubin levels (mg/dL) is 0.2844, which is not significant with a p-value of 0.7156. This implies in opposition with previous study as reported that the older the patients are the higher their bilirubin levels are [5].

#### CONCLUSION

Reemergence of Viral hepatitis cases affecting many people in Kopakchapori village. Epidemiological surveillance substantiates poor hygiene among the community. Drinking water sources are not suitable for domestic use. They were believed on herbal bindi provided by quack grounds for re-occurrence of viral hepatitis in that locality over and over until and unless people were get rid of bogus deem.

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