

An Epidemiological Study of Hepatitis Outbreak in Cuttack City, Odisha

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Abstract

Hepatitis is a highly infectious disease caused by a number of viruses. A study was undertaken in a ward of Cuttack City, where suddenly a number of cases of Jaundice reported. A team from the departments of Community Medicine visited the ward and collected the data by door to door survey. A total of 281 houses were surveyed and data was obtained. There were a total number of 55 jaundice cases. The cases reported with symptoms of fever, anorexia, yellow sclera and yellow urine. 64.3% of cases used Municipality source of water. 7.3% used the water for drinking purpose after boiling and filtration. 28% of houses did not have sanitary latrine, 85.5% from all the jaundice cases used the water for drinking purposes. The young adults were mostly affected. The cause of jaundice could be due to contamination of water supply by Municipality because of leakage and the causative agent was Hepatitis E Virus.

Keywords: Jaundice, Hepatitis E, Epidemic

Introduction

Acute viral hepatitis is a highly infectious disease caused by a number of hepatitis viruses. This is a major public health issue in the developing nations that have inadequate sanitary conditions.¹ Among all the hepatitis viruses, Hepatitis A and Hepatitis E viruses are feco-orally transmitted. Hepatitis A virus causes relatively benign diseases and does not constitute a major public health issue. Hepatitis E virus is transmitted enterically, most frequently in epidemic outbreaks.² Epidemics of Hepatitis E occur frequently in developing countries, especially in the Indian sub-continent, where poor socio-economic and poor hygiene conditions lead to epidemics. There is recurrent contamination of water supplies, which led to occurrence of jaundice epidemic in Cuttack district.

An unusual increase of jaundice cases was noticed in Cuttack city of Odisha in the month of September 2014. An investigation team visited the ward in which the jaundice outbreak had occurred. The details of the investigation of jaundice cases are presented in this study.

Objective of the Study

- To find out the number of persons affected by the epidemic
- To find out the type of hepatitis virus responsible for the epidemic
- To ascertain the mode of transmission of the virus in the locality
- To suggest feasible remedial measures

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Materials and Methods

Background Information of the Town

The area of Cuttack town is divided into 59 wards. A jaundice outbreak was reported in the area Alamchand Bazar of

ward No. 13 in the month of September. Cuttack city lies between two rivers, namely, Mahanadi and Kathjodi. Being at a low level, drainage system here does not work properly. Water logging inside the city is a constant problem of the city during the rainy season. Most of the people receive their water supply from Cuttack Municipality.

Results

Table 1. Age and Sex Distribution of the Jaundice Cases

Age in Years	Male		Female		Total	
	No.	%	No.	%	No.	%
0–9 years	1	2.56	2	12.5	3	5.45
10–19 years	7	17.94	5	31.25	12	21.81
20–29 years	11	28.2	3	18.75	14	25.45
30–39 years	14	35.89	3	18.75	17	30.9
40–49 years	5	12.82	1	6.25	6	10.9
50–59 years	1	2.56	0	0	1	1.81
>60 years	0	0	2	12.5	2	5.45
Total	39	100	16	100	55	100

Epidemiological data were collected by house-to-house visit in the affected areas. Door-to-door survey was conducted to gain information on the attack rate and the different sources of water supply, total number of persons living in those houses, total number of jaundice cases in the houses, sources of drinking water, other sources of water supply, process of household disinfection of water, etc.

A total of 281 houses were surveyed and data obtained.

The response was obtained in a predesigned questionnaire.

A total of 55 jaundice cases were reported from Alamchand Bazar of Cuttack city during September 2014. The total population of Alamchand Bazar was 1400. Cases of jaundice were reported from the whole area. During the epidemic, 55 cases of jaundice were reported. Maximum cases were from age group 20–39 years. Mean ages of males were 28.4 years and females 26.9 years, the age range being 4 to 62. The incidence rate of jaundice in males was 12.2% and females 5.83%. No deaths were reported.

All the cases presented with the signs and symptoms of fever, anorexia yellow sclera and yellow urine.

The source of water in 64.3% of cases was from the municipality. Rest got their drinking water from wells.

Before the occurrence of jaundice epidemic, only 7.3% drank water after treating it by boiling and filtration. After the epidemic broke out, 54% had started drinking water after boiling and filtering it.

72% of the houses had sanitary latrines whereas 28% did not have sanitary latrine facility.

The source of water in 64% of the households was from

the municipality. The piped-water supply system of municipality was found to be leaking at some places. The lines of drainage system being under repair, they could have contaminated the pipes.

Out of jaundice cases, 85.5% had used municipality water for drinking purposes and none of them had disinfected the water before drinking.

50 blood samples were collected and tested for markers of viral hepatitis. From among the samples collected, 27 cases were found to be positive for Hepatitis E virus whereas 4 cases were positive for Hepatitis A. Rest of the blood samples were found to be negative.

As soon as the epidemic was noticed in the month of September, the municipal authorities promptly installed big tanks in these areas and they were regularly filled with chlorinated water. An extensive health education program was given with the active cooperation of corporators to take chlorinated water supplied by the municipality and not to take edible items from street vendors.

The municipality took active steps to repair the leakages in the distribution system. People were made aware to take help from the nearby city hospital or SCB Medical College and Hospital.

Discussion

This study finds the overall incidence of hepatitis E to be per 1.92%. Another study showed 34.6 per 1000 in a previous Hep E epidemic in Tirupati town.³ The finding in our study is lower than another study done at Ahemadabad city.⁴ Based on a 2010 global burden of diseases study, it has been estimated that as many as 20.1 million people were infected with HEV virus in 2005 in 9 regions which

represents 71% of the world's population with 3.4 million symptomatic cases, 70,000 deaths and 3000 still births.⁵ A number of outbreaks of Hepatitis C keep on occurring globally as well as in India repeatedly starting from the year 1955-56.⁶

In this area young adults were more affected by Hep. E infection.

The cause of Hep. E outbreak could be due to leakage of piped water supply system as well as leaking of drainage system. Though the repair work was going on by the municipality yet the contamination could not be avoided. Attack rate corresponded to the water supply of the affected household.

The attack of jaundice could be due to contamination of water supply by municipality because of leakage. Hepatitis E virus causes a major public health problem in India from time to time.

Recommendation

It was seen that most of the inhabitants in the area were drinking water supplied by the municipality, without boiling

and filtering, which could have been the cause of the hepatitis outbreak. The inhabitants were advised to drink water after boiling and filtration.

Conflict of Interest: None

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