

Outbreak Investigation of Cholera at Tertiary Care Hospital, Ahmadabad

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Abstracts: Background & Objective: Global , regional, national estimates clearly place diarrheal disease as a major. The objective of this study was outbreak investigation of cholera at civil hospital and its nearby areas as IDSP state reference laboratory. Methods: Study was conducted for a period of 5 months from JUNE 2016 to OCTOBER 2016.The bacteriology laboratory, Microbiology department ,civil hospital received stool samples and water samples from the suspected area of acute gastro-enteritis, from patients admitted in civil hospital Ahmedabad and also from the nearby primary health centers, community health centers and district hospitals. The stool samples are processed as per standard microbiology techniques. For the suspected cholera isolates battery of biochemical test is run for identification of the sero typing of all vibrio cholera. Isolation is done by agglutination with specific antisera. For bio typing and phage typing all the isolates are sent to National Institute of Cholera and Enteric Diseases (NICED)Kolkata. Results: Out of total 1252 stool samples 39 vibrio cholera isolates on selective media and out of total 30 water culture samples 10 water samples found contaminated. Interpretation & Conclusion: The outbreak of cholera cases were increased in lower socio-economical class and overcrowded area due to poor hygiene and sanitation. Proper hand washing techniques, chlorination and periodic water testing with effective intervention can change the scenario. [Anokhi G NJIRM 2017; 8(2):78-79]

Key Words: Stool, Cholera , Hand washing

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Introduction: Cholera outbreak have been infrequently reported from developed countries and often reported from various part of developing and underdeveloped countries mainly owing to poor sanitation of potable water.

Cholera is a bacterial infection spreading via the feco-oral route, leading to an acute diarrheal disease with a large cluster of cases. In its severe form cholera gravia the clinical disease is characterized by the passage of voluminous stools of rice water character that rapidly lead to dehydration ,hypovolemic shock, acidosis and death if prompt and appropriate treatment is not initiated.

The aetiological agent of the seventh cholera pandemic is v.cholera O1 biotype EL TOR which has completely replaced its counterpart classical biotype over a period of time. The member of the serogroup O1 are further classified into two major serotypes, ogawa and inaba. According to the earlier reports from india EL TOR Vibrio Cholera O1, serotype ogawa has been the predominant causative organism of cholera outbreaks.^{1,2}

Methods: The bacteriology laboratory , microbiology department, civil hospital received stool samples and water samples from the suspected area of acute gastro-enteritis and from patients admitted in civil

hospital Ahmedabad and also from nearby primary health center and community health center.

All samples were bacteriologically investigated for aetiology by following standard procedure at the department of microbiology.

Alkaline peptone water is used as an enrichment broth and thiosulphate citrate bile salts agar(TCBS) is the selective agar medium.

Classical yellow colour colonies seen on thio sulphate citrate bile salts agar(TCBS) and glistening translucent colonies with a bluish tinge in transmitted light (water drop like) on nutrient agar.³

All the suspected isolated colonies are subjected to oxidase test and all the oxidase positive isolates run for battery of biochemical reactions for confirmation. In biochemical reactions Indole test positive, triple sugar iron agar test shows acid/acid no gas, no H₂S. Nitrate reduction test is positive. Methyl red test is positive. Voges proskauer test positive for EL Tor and negative for classical biotype.

For presumptive identification slide agglutination with polyvalent O1 or O139 antisera and confirmation is done by specific antisera inaba and ogawa. For phage typing isolates send to National Institute of Cholera

and Enteric Diseases (NICED), Kolkatta. The water samples were also received .water samples were found to be positive for coliform count and Vibrio cholera.

Result:

Month	No. Of Stool Sample Collected	No. Vibreo Cholerae Isolated
June	321	09
July	370	18
August	191	01
September	105	00
October	122	00

No. Of Water Sample Received	No. Of Water Contaminated
30	10

Conclusion: In our study attack rate of 3.11%.In the present study all the isolates were EL Tor Ogawa. None of our isolates were found to be O 139 Vibrio cholerae. Though it has raised a great concern forecasting eighth pandemic due to Bengal strain, EL Tor Vibrio still are prevalent in various parts of India. Cholera outbreak is continuing in rural areas. Provision of safe drinking water, improving sanitation and strengthening of disease surveillance is necessary to avoid recurrences of cholera and other diarrheal disease. There is a need to implement different long term public health intervention strategies and to do action research for better evidence generation.

Discussion: There is inadequate sanitation and insufficient access to clean potable drinking water as everybody is using piped water which was found contaminated. Bacteriological examination of stool and water sample revealed Vibrio cholerae O1 EL Tor ,Ogawa as the causative organism. Other studies in India also revealed the same strain as causative organism of gastroenteritis outbreak in recent past. In our study attack rate of 3.11%.In other study of cholera outbreak revealed 4.79% of attack rate.²

Acknowledgement: We extend our gratitude to Medical Superintendent, civil hospital, Ahmedabad, Dean of B.J. Medical college and Director Post graduate studies and Research B.J. Medical college, Ahmedabad for their support in this study. We are thankful to Microbiology Department. We are also thankful to NICED, Kolkata for phase typing of our isolated vibrio cholera.

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Conflict of interest: None
Funding: None
Cite this Article as: Anokhi G, Kanu P, Dharmistha T, M.M.Vegad, Nidhi S, Binda P. Outbreak Investigation of Cholera at Tertiary Care Hospital, Ahmadabad. Natl J Integr Res Med 2017; 8(2):78-79

