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"A Study on prevalence of Hepatitis -A and hepatitis-E virus infection in patients of tertiary care hospital, Jamnagar"

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ABSTRACT
INTRODUCTION:-
Hepatitis–A and hepatitis-E virus are both feco-orally transmitted, resulting in acute viral hepatitis in developing countries. Study was done to determine the prevalence of HAV and HEV in patients presenting with acute viral hepatitis.
OBJECTIVES:-
To detect Hepatitis A and hepatitis E by ELISA at tertiary care hospital, Jamnagar.
MATERIAL AND METHOD:-
: Study was conducted in the microbiology department of Shri M.P. Shah Govt. Medical College, Jamnagar. From JANUARY 2018 to AUGUEST 2019.
Blood samples of suspected viral aetiology causing acute viral hepatitis (AVH) for Hepatitis A and Hepatitis E virus were tested for Hepatitis A IgM antibodies, and Hepatitis E IgM antibodies.
RESULT:-
Out of 822 samples tested, 48 (5.84%) were seropositive for Hepatitis A IgM antibody, in which 75% are male and 25% are female, Among these maximum prevalence in 10-19years (47.92) followed by 0-9 years(43.75).Out of 686 samples tested, 98 (14.28%) were seropositive for Hepatitis E IgM antibody, in which 65.3% are male and 34.7% are female. , Among these maximum prevalence in 20-29years (34.70) followed by 30-39 years(30.62).
CONCLUSION:-
The seropositivity of HAV infection was more among childhood age group. The seropositivity of HEV infection was more among teenage and young adult age group.
These infections were predominantly seen during monsoon and beginning of winter, as both transmitted via fecal-oral route.
KEY WORDS: *HAV;HEV; SEROPREVALENCE; AGE; SEX*

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I. INTRODUCTION:

Hepatitis–A and hepatitis-E virus are both feco-orally transmitted, resulting in acute viral hepatitis in developing countries. Present study was done to determine the prevalence of HAV and HEV in patients presenting with acute viral hepatitis, both virus mainly affect the liver and symptoms ranges from mild fever to chronic liver damage and severe jaundice.(1)

The hepatitis A virus (HAV), is a common cause of hepatitis worldwide. Spread of infection is generally person to person or by oral intake after fecal contamination of skin or mucous membranes. (2)

Etiology of acute viral hepatitis (AVH) cannot be differentiated on the basis of mode of presentation; confirmation is done serologically. HEV is an important hepatotropic virus that causes acute viral hepatitis.(3)

In young children the disease is often asymptomatic, whereas in older children and adults there may be a range of clinical manifestations from mild, anicteric infection to fulminant hepatic failure

Management of the acute illness is supportive, and complete recovery without sequelae is the usual outcome(4)

Hepatitis E virus (HEV) infection is a worldwide disease.

HEV infection is usually an acute self-limiting disease, but it can causes chronic infection with rapidly progressive.(5,6)

HEV also causes extrahepatic manifestations, including a number of neurological syndromes and renal injury. Acute infection usually requires no treatment, but chronic infection should be treated by reducing immunosuppression in transplant patients and/or the use of antiviral therapy (7)

Objective : To detect Prevalence of Hepatitis A and hepatitis E by ELISA at tertiary care hospital, Jamnagar
MATERIAL AND METHOD:-
TYPE OF STUDY: It is a cross sectional study
Duration of study period:- JANUARY 2018 to AUGUEST 2019.
Total sample received during study period :
Total 822 venous blood samples of patients were tested for Hepatitis A IgM antibodies, and Total 686 venous blood samples of patients were tested for Hepatitis E IgM antibodies
Method used for sample testing: Blood samples were collected from patients suspected of acute viral hepatitis in our institute. Blood samples were collected from all the patients after taking the informed consent. Centrifugation was performed at 1500 rpm for 10 minutes to separate the serum. Then they stored at 2-8◦C. ELISA tests were done with HAV and HEV (EDI IgM) captured method

METHODOLOGY OF ELISA
All samples were uniformly tested by ELISA for anti HAV IgM (EDI IgM kit), Anti HEV IgM (EDI IgM kit), Results of ELISA tests were interpreted as per manufacturer's instruction.

Principal of the Test:
" Elisa assay is based on the principle of "IgM" capture."
1)Solid micro wells plate coated with anti-human IgM specific antibody.
2)After 1st incubation human IgM subclass antibody is captured by the solid- phased coated anti-human IgM.
3) After washing step specific anti- HAV/HEV IgM captured are detected by the addition of a purified preparation of HAV antigen and monoclonal anti-HAV/HEV specific antibody that is conjugated with peroxidise (HRP)
4) After 2nd incubation a complex of "well coated anti-human IgM antibody- human IgM- HAV/HEV antigen-HRP conjugated monoclonal anti-HAV/HEV antibody" is formed.
5) Unbounded HRP conjugates are then removed by washing. Enzyme complex is detected by adding a chromate/substrate in to each well. The blue colour is developed proportion to amount of anti-HAV IgM antibody in the specimen.
6) The enzyme-substrate reaction is stopped by addition of sulphuric acid. The absorbance are read by using an ELISA reader with wavelength at 450 nm.

Type Of Sample: Human serum sample.

II. RESULT:-

During study period Out of 822 samples tested, 48 (5.84%) were seropositive for Hepatitis A IgM antibody, in which 75% are male and 25% are female, Among these maximum prevalence in 10-19years (47.92) followed by 0-9 years(43.75).

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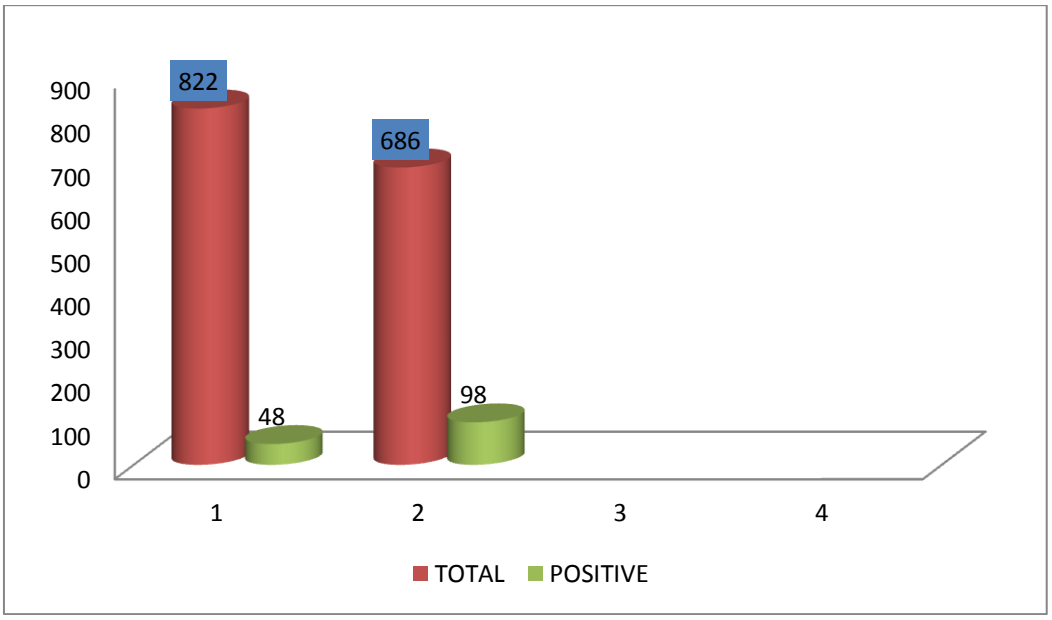
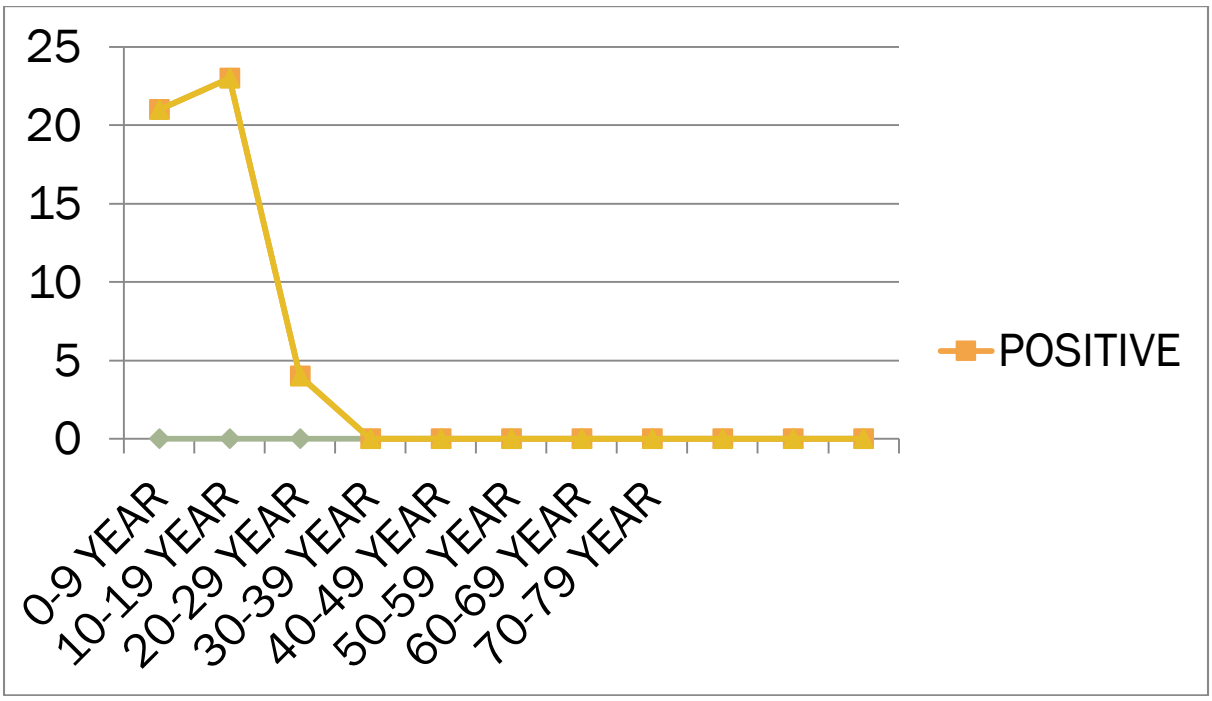
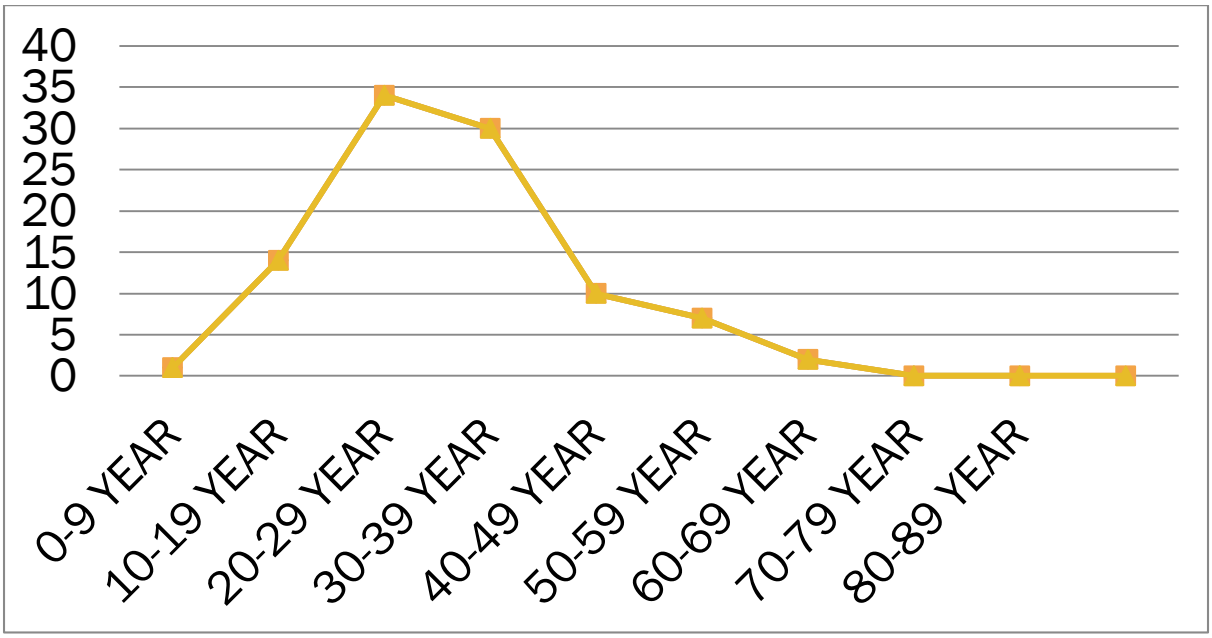
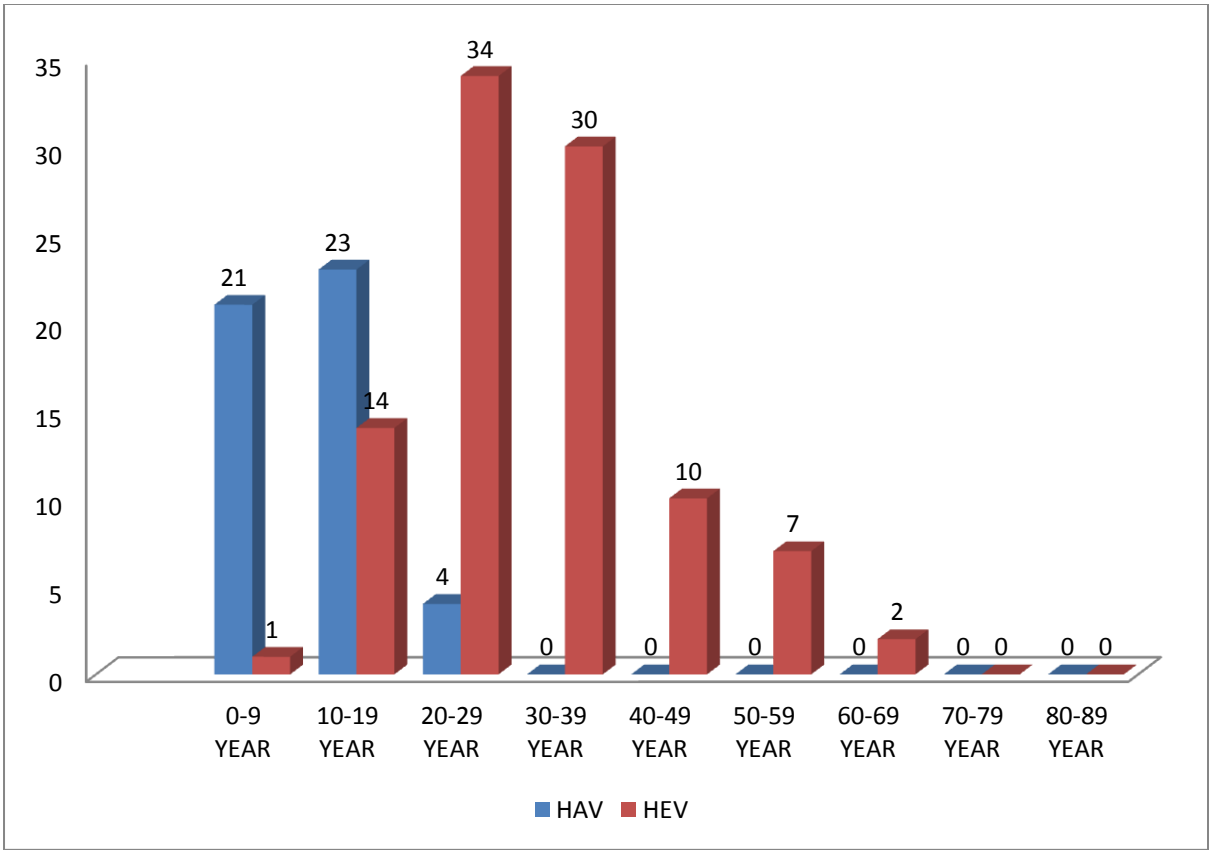


HAV SEROPOSITIV (ACORDING TO AGE GROUP)



HEV SEROPOSITIV (ACORDING TO AGE GROUP)





III. DISCUSSION:

Viral hepatitis continues to be major public health problem in India and other developing countries. Ever since the first major epidemic of HEV that occurred in 1955 at Delhi(10), where 30,000 people were affected due to sewage contamination of city's drinking water supply following a flood that occurred in Yamuna river.

The age distribution of cases in this study was similar to previously other studies. Our findings are comparable with the studies done by Nail et al and Tesga et al WHO reported that men had higher attack rates than women, attack young adults showed high attack rates. These could be possibly due to very poor sanitary & hygienic conditions, leakages in drinking water pipelines and overflowing drains. In a resource-limiting setting,

particularly when urban areas grow rapidly, provision for sewage and protected water supply is often neglected, with serious consequences for public health.

IV. CONCLUSION:-

- The seropositivity of HAV infection was more among childhood age group. The seropositivity of HEV infection was more among teenage and young adult age group.
- These infections were predominantly seen during monsoon and beginning of winter, as both transmitted via fecal-oral route
- Hepatitis E is more common than Hepatitis A these data might be helpful for planning of future vaccination strategies and for better sanitation program.
- A temporary alternative water supply, repair of the leakages, and water quality surveillance.
- However, chlorination in routine does not kill viruses, however it protects from other bacterial conditions. Ÿ Quality of the drinking water for fecal contamination should be periodically checked.
- The recognisation of early warning signals, timely investigation, proper monitoring, and application of specific control measures with sanitation can control disease and decreased morbidity and mortality.

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REFERENCES:-

[1]. Labrique AB, Thomas DL, Stoszek SK, Nelson KE. Hepatitis E: an emerging infectious disease. Epidemiol Rev. 1999;21:162-79. Khuroo MS. Study of an epidemic of non-A, non-B hepatitis. Possibility of another human hepatitis virus distinct from post-transfusion non-A, non-B type. Am J Med 1980; 68: 818-24. Aggarwal R. Hepatitis E: Epidemiology and Natural History Journal of Clinical and Experimental Hepatology. June 2013 ;3

[2]. 125-133 Vivek R, Nihal L, Illiayaraja J, Reddy P K, Sarkar R and Kang G. Investigation of an epidemic of Hepatitis E in Nellore in south India. Tropical Medicine and Internatinal Health. 2010; 15

[3]. 32:3428-32. 8.Nidhi Subhash Chandra, Asha Sharma, Ramesh Roop Rai & Bharti Malhotra. Contribution of hepatitis E virus in acute sporadic hepatitis in north western India. Indian J Med Res 201

[4]. 1333-1339 5.Acharya SK, Madan K, Dattagupta S, Panda SK. Viral hepatitis in India. Natl Med J India. 2006;

[5]. Joon A, rao P, shenoy S M, baliga S. Prevalence of hepatitis A virus and hepatitis E virus in patient presenting with acute viral hepatitis. Indian j med microbial 2015;53 supplS1:102-5

[6]. Web md reference book for diagnosis and treatment. http://www.webmd.com/hepatitis

[7]. Anantnarayan book of microbiology, chapter of acute hepatitis, chapter no 59.