

**MICROBIOLOGICAL STUDY ON GASTROENTERITIS OF  
CHILDREN FROM KANTI CHILDREN'S HOSPITAL WITH  
REFERENCE TO CYCLOSPORA AND ROTAVIRUS INFECTION**

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(Medical)**

**by  
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## ABSTRACT

A study was conducted from May to September 2006 among children below 5 years of age attending Kanti Children's Hospital who were suspected of gastroenteritis. Among five hundred samples, three hundred and eighty six were taken from patient suffering from diarrhoea and one hundred and fourteen were non-diarrhoeal. Samples were collected and investigated in Health Research Laboratory, Institute of medicine by wet saline, iodine mount, and Ziehl Neelson staining for *Cyclospora* and other parasites, Enzyme Immuno Assay for rotavirus and selective culture method for bacteriological investigation.

The prevalence of enteropathogens observed was (52.1%) in diarrhoeal cases and (39.5%) in non-diarrhoeal cases. Out of 386 diarrhoeal samples (16.8%) was positive for rotavirus, (7.8%) for *Cyclospora*, (3.4%) for bacteria and (24.1%) for other parasites. Out of 114 non-diarrhoeal samples (4.8%) was positive for rotavirus, (6.14%) for *Cyclospora*, one case for bacteria and (28.1%) for other parasites.

Among diarrhoeal case rotavirus infection was seen highest in the age group 7-24 months (21.6%), month of September (28%) and in males (17.95%) than in females (14.8%). Cyclosporiasis was found highest in the age group 0-6 months (12.5%) and in month of July (16.45%). Among non-diarrhoeal cases, rotavirus infection was seen highest in the age group 7-24 months (5.7%), month of May (13.3%) and in males (4.54%) than in females (4.16%). Cyclosporiasis was found highest in the age group 25-60 months (12%), and in month of June (15.78%).

Among the bacterial pathogens isolated, *Vibrio* spp (2.6%) was the major causative agent followed by *Salmonella* spp. (1.2%) and *Shigella* spp. was not found in a single case. Among diarrhoeal cases, the prevalence rate of bacterial pathogen was higher in the age group 25-60 months (2.3%), in the month of September (16%) and in females (1.8%). Among non-diarrhoeal cases, it was only found in the age group 25-60 months (0.9%). In non-diarrhoeal cases, it was found only in the month of August (3.3%) and only females were infected (0.9%).

In diarrhoeal cases, the protozoans were *Entamoeba histolytica* (9.3%), *Giardia lamblia* (8.3%), *Cyclospora* (7.8%), *Entamoeba coli* (1.1%), *Cryptosporidium parvum* (0.8%), *Blastocystis hominis* (1.8%). Whereas in non-diarrhoeal cases, *Giardia lamblia* (10.5%), *Entamoeba histolytica* (7.0%), *Cyclospora* (6.1%), *Entamoeba coli* (0.8%), *Cryptosporidium parvum* (0.7%) and *Blastocystis hominis* (3.5%).

In diarrhoeal cases, the helminthes were *Ascaris lumbricoides* (1.1%), *Hymenolepis nana* (1.1%), *Trichuris trichuria* (0.5%), *Taenia* spp. (0%), whereas in non-diarrhoeal cases, *Ascaris lumbricoides* (1.2%) and *Trichuris trichuria* (1.2%), *Hymenolepis nana* (0.9%), *Taenia* spp. (0.9%).

The prevalence of enteropathogen was found highest in the children consuming tap water and children having nausea and vomiting.

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## LIST OF ABBREVIATIONS

+ve	Positive
µg	Microgram
µl	Microlitre
µm	Micrometer
ACIP	Advisory Committee on Immunization Practices
AIDS	Acquired Immunodeficiency Syndrome
ALA	Amoebic Liver Abscess
AWD	Acute Watery Diarrhoea
cAMP	Cyclic Adenosine Monophosphate
CFR	Case Fatality Rate
DALY	Disability-Adjusted Life Year
DCA	Deoxycholate Citrate Agar
DIC	Differential Interference Contrast
DNA	Deoxyribonucleic Acid
DoHS	Department of Health Services
EHEC	Enteroadherent E.coli
EIA	Enzyme Immuno Assay
EIEC	Enteroinvasive E.coli
ELISA	Enzyme Linked Immunosorbent Assay
EPEC	Enteropathogenic E.coli
ETEC	Enterotoxigenic E.coli
GI Tract	Gastrointestinal tract
Gm	Gram
H <sub>2</sub> O <sub>2</sub>	Hydrogen Peroxide
H <sub>2</sub> S	Hydrogen Sulphide
HIV	Human Immunodeficiency Virus
IgA	Immunoglobulin A
K/A	Alkali/Acid
K <sub>2</sub> Cr <sub>2</sub> O <sub>7</sub>	Potassium dichromate
MA	MacConkey Agar
MR-VP	Methyl Red-Voges Proskauer

NA	Nutrient Agar
Nm	Nanometer
NSP4	Non-Structural protein 4
OF	Oxidative Fermentative
OPD	Out Patient Department
ORT	Oral Rehydration Treatment
PAGE	Poly Acrylamide Gel Electrophoresis
PAHO	Pan American Health Organization
PCR	Polymerase Chain Reaction
RBC	Red Blood Corpuscles
RNA	Ribonucleic Acid
RTPCR	Reverse Transcriptase Polymerase Chain Reaction
RV	Rotavirus
SIM	Sulphur Indole Motility
spp	Species
SS Agar	Salmonella-Shigella Agar
TCBS	Thiosulphate Citrate Bile Salt Agar
TCP	Toxin Co-regulated Pilus
TSI agar	Triple Sugar Iron Agar
TUTH	Tribhuvan University Teaching Hospital
UV	Ultraviolet
-ve	Negative
VP	Viral Protein
WBC	White Blood Corpuscles
WHO	World Health Organization