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Original Research

Assessment of cases of acute gastroenteritis admitted to medical ward

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***ABSTRACT*:**
Background: Acute gastroenteritis is a common reason for admission in emergency departments. The present study assessed cases of gastroenteritis admitted to medical ward. **Materials & Methods:** The present study was conducted on 102 patients of both genders. Three faecal samples from single bowel movements were collected in a sterile specimen container, immediately refrigerated, and then transported to the microbiological department where they were analyzed for Norovirus and C. difficile. All stool samples were tested for C. difficile Toxin B, and if positive were further analyzed for the presence of the binary toxin. **Results:** Out of 102 patients, males were 62 and females were 40. Maximum cases were found positive of Norovirus (57), maximum cases were seen in age group 30-40 years (41), maximum patients had diarrhoea (45) >3 days, 44 patients had >10 vomit a day, 80 patients had mucous in stool and 92 patients had abdominal pain. The difference was significant (P< 0.05). Maximum cases were seen in winters (67) followed by spring (18), autumn (10) and summer (7). The difference was significant (P< 0.05). **Conclusion:** Authors found that maximum cases were found positive of Norovirus in age group 30-40 years, maximum patients had diarrhoea >3 days having >10 vomit a day.
Key words: Diarrhoea, Norovirus, Vomit

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Introduction
Acute gastroenteritis (GE) is a common reason for admission in emergency departments (ED). Adult patients with Norovirus and toxigenic Clostridium difficile are prevalent in Northern Europe and require strict isolation, since they are highly contagious.[1] EDs are characterized by high patient volumes and a short duration of stay, and contact precautions (CP) are important for preventing the spread of contagious diseases to many other patients. According to international and national recommendations, patients with suspected Norovirus or C. difficile infection require a private room and toilet and health staff must wear personal protective equipment. While the use of such isolation procedures minimizes the risk of disease spread, there are notable drawbacks since the isolation procedures demand more health-care resources, restrict patient mobility, decrease flexibility, and lead to less documented care and fewer physician visits.[2]
Gastroenteritis can be due to bacterial, viral or parasitic pathogens most often transmitted via the fecal-oral route or through contaminated food or water. The most common bacterial pathogen in developed countries is *Campylobacter jejuni* and other common pathogens include *Staphylococcus aureus,Salmonella*, *Shigella* and enterotoxigenic *Escherichia coli*. While *Clostridium*

difficile is considered the most common cause of antibiotic induced diarrhea in adults it is not in the pediatric population. The most prevalent viral cause of gastroenteritis is rotavirus followed by the noroviruses and hepatitis. Rotavirus has been on the decline due to increasing vaccination rates. Parasitic causes of acute gastroenteritis may be due to *Cryptosporidium parvum*, *Entamoeba histolytica* and *Giardia lamblia*.[3] The present study assessed cases of gastroenteritis admitted to medical ward.

Materials & Methods

The present study was conducted in the department of general medicine. It consisted of 104 patients of both genders. All were informed regarding the study and written consent was obtained. Ethical clearance was taken from institutional ethical committee.

General information such as name, age, gender etc. was recorded. Inclusion criteria was an acute onset of three or more loose stools or any vomiting in 24 h, excluding patients with (a) cancer of the bowel, irritable bowel syndrome, Crohn's disease, ulcerative colitis.

Three faecal samples from single bowel movements were collected in a sterile specimen container, immediately refrigerated, and then transported to the microbiological department where they were analyzed for Norovirus and C. difficile. All stool samples were tested for C. difficile Toxin B, and if positive were further analyzed for the presence of the binary toxin. Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

Results

Table I Distribution of patients

Total- 102		
Gender	**Males**	**Females**
Number	62	40

Table I, graph I shows that out of 102 patients, males were 62 and females were 40.

Graph I Distribution of patients

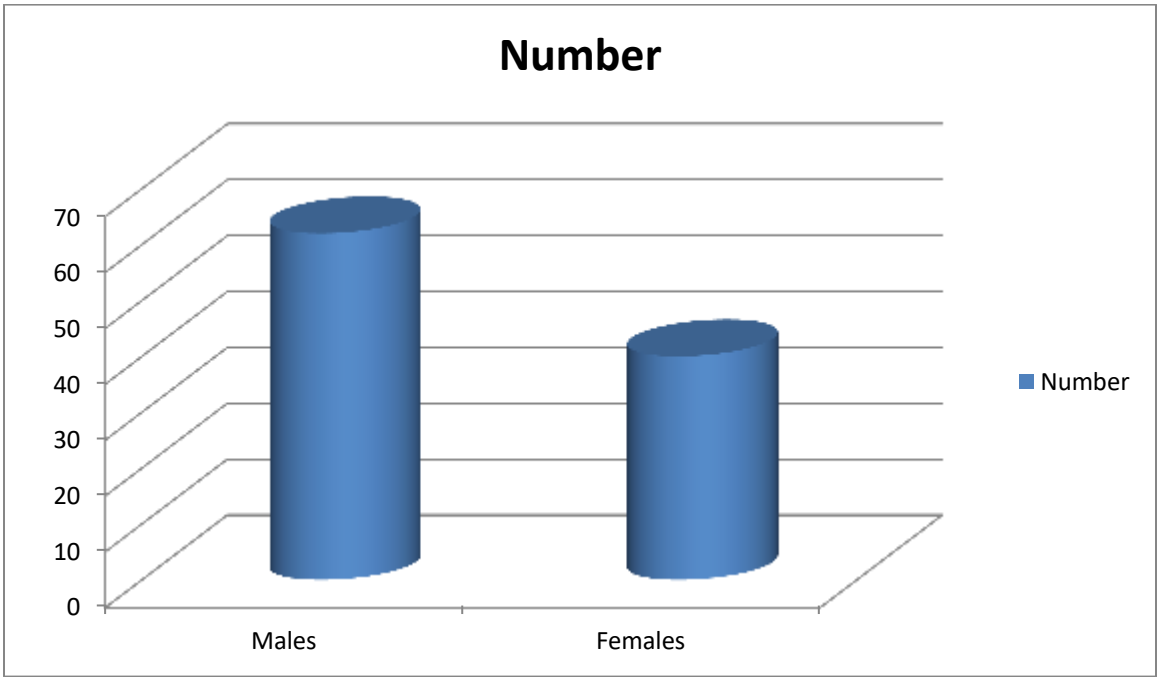


Table II Results of the faecal sample examination

Parameters	Age	Norovirus	C. difficile	P value
Age group (Years)	20-30	16	14	0.14
	30-40	20	21	
	40-50	12	10	
	>50	5	4	
Duration of diarrhoea	1 day	10	4	0.02
	1-3 days	21	22	
	>3 days	26	19	
No. of vomit	1-3	9	10	0.01
	4-10	19	20	
	>10	29	15	
Mucous in stool	Yes	45	35	0.14
	No	12	10	
Abdominal pain	Yes	50	42	0.17
	No	7	3	

Table II, graph II shows that maximum cases were found positive of Norovirus (57), maximum cases were seen in age group 30-40 years (41), maximum patients had diarrhoea (45) >3 days, 44 patients had >10 vomit a day, 80 patients had mucous in stool and 92 patients had abdominal pain. The difference was significant (P< 0.05).

Graph II Results of the faecal sample examination

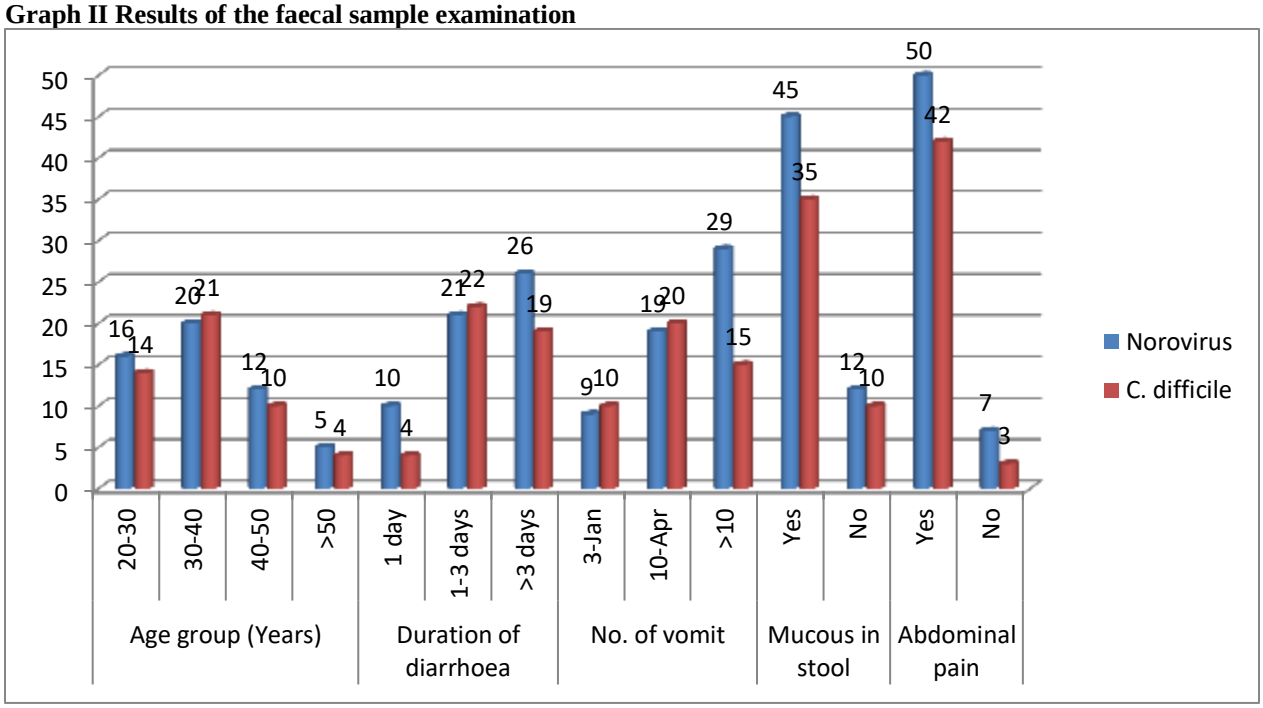
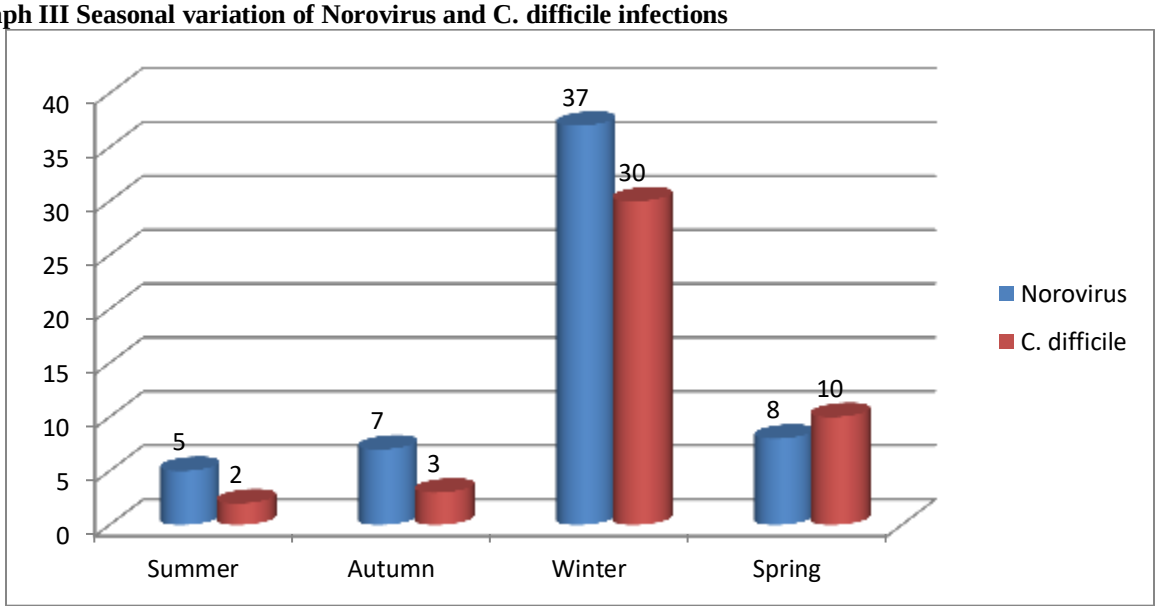


Table III Seasonal variation of Norovirus and C. difficile infections

Season	Norovirus	C. difficile	P value
Summer	5	2	0.01
Autumn	7	3	
Winter	37	30	
Spring	8	10	

Table III, graph III shows that maximum cases were seen in winters (67) followed by spring (18), autumn (10) and summer (7). The difference was significant (P< 0.05).

Graph III Seasonal variation of Norovirus and C. difficile infections



Discussion

The clinical presentation of patients with acute gastroenteritis is variable depending on the pathogen and the amount of inoculum the patient is exposed to. The most common symptoms are nausea and vomiting followed shortly after by diarrhea. Diarrhea may be watery as is often the case with viral causes and toxin-producing bacteria. Invasive bacteria such as Campylobacter, Shigella, Salmonella and enteroinvasive E. coli (shiga-toxin producing) will often produce bloody diarrhea.[4] In regards to parasitic causes of gastroenteritis, Entamoeba may be associated with bloody diarrhea while large amounts of flatulence could suggest infection with Giardia. Most causes of gastroenteritis associated symptoms may include fever and abdominal cramping. If there is a prolonged or severe course of illness dehydration, weight loss and malnutrition may occur.[5]

If the infectious agent produces a preformed toxin, such as S. aureus or Bacillus cereus, vomiting and diarrhea will occur in a matter of hours after ingestion of contaminated food. In the case of most bacterial pathogens the incubation period will be two to five days.[6] Viral illnesses have an incubation period of twelve hours to three days and parasitic agents will take two days to four weeks to manifest symptoms.[7] Exposure of a traveler or hiker to untreated water and illness that persists for more than seven days should prompt evaluations for protozoal pathogens. One of the major clinical features of protozoal diarrheas is a prolonged course. Patients who have persistent diarrhea should have stools tested for Entamoeba histolytica antigen, Giardia intestinalis antigen, and Cryptosporidium parvum antigen by EIA.[8] The present study assessed cases of gastroenteritis admitted to medical ward.

In present study, out of 104 patients, males were 64 and females were 40. Freedman et al[9] conducted a study which enrolled 227 patients, of whom 163 (71%) delivered a faecal sample for Norovirus analysis (13% positive), 171 (74%) for C. difficile (13% positive), and 173 (76%) for enteropathogenic bacteria (16% positive). In total 71% of the patients were isolated using strict precautions, 29% of the isolated patient and 14% of the patients who were not isolated had had a highly contagious GE. Risk factors for Norovirus included frequent vomiting (OR 5.5), recent admission of another patient with Norovirus (OR 2.6), and a short duration of diarrhoea. Risk factors for C. difficile infections included older age (OR 6.0), longer duration of diarrhoea (OR 5.2), mucus in stool (OR 3.5), and previous antibiotic use.

We found that maximum cases were found positive of Norovirus (57), maximum cases were seen in age group 30-40 years (41), maximum patients had diarrhoea (45) >3 days, 44 patients had >10 vomit a day, 80 patients had mucous in stool and 92 patients had abdominal pain. Laboratory studies may not be necessary for the child who presents with acute gastroenteritis unless the results are severely abnormal. However, if the child appears moderately or severely dehydrated a basic metabolic profile and glucose measurement may help guide management by assessing for electrolyte imbalance (hyponatremia, hypernatremia or hypokalemia), dehydration (metabolic acidosis), acute renal failure or hypoglycemia. Infants have a relatively high glucose requirement and low glycogen stores, so they may develop hypoglycemia when energy requirements

rise. Checking blood sugar can be especially important in this population.[10]

Conclusion

Authors found that maximum cases were found positive of Norovirus in age group 30-40 years, maximum patients had diarrhoea >3 days having >10 vomit a day.

References

1. Mounts AW, Holman RC, Clarke MJ, Bresee JS, Glass RI. Trends in hospitalizations associated with gastroenteritis among adults in the United States, 1979-1995. Epidemiol Infect. 1999;123(1):1–8.
2. Skyum F, Abed OK, Mogensen CB. Clinical information on admission is insufficient to determine the appropriate isolation regimen for acute gastroenteritis. Dan Med J. 2014;61(6):A4850.
3. Siegel JD, Rhinehart E, Jackson M, Chiarello L. 2007 guideline for isolation precautions: preventing transmission of infectious agents in health care settings. Am J Infect Control. 2007;35(10, Suppl 2):S65–164.
4. Institut SSS. Nationale Infektionshygiejniske Retningslinjer.om supplerende forholdsregler ved infektioner og bærertilstand i sundhedssektoren. In: Infektionshygiejne CEf, Editor.: SSI; 2016.
5. Morgan DJ, Pineles L, Shardell M, Graham MM, Mohammadi S, Forrest GN, et al. The effect of contact precautions on healthcare worker activity in acute care hospitals. Infect Control Hosp Epidemiol. 2013;34(1):69–73.
6. Stelfox HT, Bates DW, Redelmeier DA. Safety of patients isolated for infection control. JAMA. 2003;290(14):1899–905.
7. Evans HL, Shaffer MM, Hughes MG, Smith RL, Chong TW, Raymond DP, et al. Contact isolation in surgical patients: a barrier to care? Surgery. 2003;134(2): 180–8.
8. Kaplan JE, Feldman R, Campbell DS, Lookabaugh C, Gary GW. The frequency of a Norwalk-like pattern of illness in outbreaks of acute gastroenteritis. Am J Public Health. 1982;72(12):1329–32.
9. Freedman SB, Eltorky M, Gorelick M. Evaluation of a gastroenteritis severity score for use in outpatient settings. Pediatrics. 2010;125(6): 1278–85.
10. Chandra S, Latt N, Jariwala U, Palabindala V, Thapa R, Alamelumangapuram CB, et al. A cohort study for derivation and validation of a clinical prediction scale for hospital-onset Clostridium difficile infection. Can J Gastroenterol. 2012;26(12):885–8.