

# Factors Associated with Contagious Gastroenteritis in Adults

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## ABSTRACT

**Aim:** To determine the factors associated with contagious gastroenteritis in adults.

**Study design:** Prospective study

**Place and duration of study:** Department of Gastroenterology, New Life Hospital, Fateh Jang from 1<sup>st</sup> April 2021 to 30<sup>th</sup> September 2021.

**Methodology:** Fifty patients, who were suspected of suffering from contagious gastroenteritis, were isolated in the private care setting until the confirmation of such through laboratory testing, faecal sampling/examination and scoring method, were enrolled. A well standardized questionnaire was generated for documenting all the demographic as well as clinical, examined history of patients with their faecal sampled results. Additional information about travel history, at least two months before gastroenteritis development, any infectious contact, recent antibiotic usage was also recorded.

**Results:** There were more females as 81.8% in *C. difficile* cases and 48.71% in other contagious patients with gastroenteritis in comparison with 27.2% and 48.71% respectively. The age pattern showed that contagious gastroenteritis due to *C. difficile* was common in 25-45 years group, while 46-65 year age group was common for other contagious gastroenteritis. Around 45.45% patients with *C. difficile* and 51.2% other cases has a close contact with other people before admission. Also, there were 36.36% *C. difficile* cases with 1-2 month antibiotic usage history and 12.82% those cases of other contagious gastroenteritis with recent antibiotic usage.

**Conclusion:** Contagious gastroenteritis is associated with factors such as age, travelling, antibiotic usage and mucous generation.

**Keywords:** Clostridium; Travelling; Antibiotics; Gender

## INTRODUCTION

Gastroenteritis is one of the major common causes of hospital emergency admissions<sup>1,2</sup>. There is a high rate of severe illness and mortality related with complicated cases of gastroenteritis. Various contagious bacterial types have been associated with causing gastroenteritis in adults. Precautions regarding contact are mandatory with those patients who are suffering from contagious gastroenteritis. *Clostridium Difficile* is a contagious Gram-positive bacterial type resulting in severe gastroenteritis in adults. A recommendation of private isolated room is required by the patients suffering from it<sup>3-5</sup>.

Contagious gastroenteritis case as requires isolation therefore it also increases the need of separate health care, restriction in hospital visits, reduced mobility as well as lack of documented-care<sup>6-8</sup>.

The clinical care of contagious gastroenteritis is linked with the initial examination and clinician's professional judgment. However, many cases are being over looked due to this reason. The gastroenteritis severity score can be used for determining the severity of acute gastroenteritis than only relying on clinician judgment<sup>9,10</sup>.

The objective of the study was to determine the factors associated with contagious gastroenteritis in adults.

## MATERIALS AND METHODS

It was a prospective study enrolling 50 adult patients who were suffering from contagious gastroenteritis after IRB permission. The patient's clinical history, symptoms and examination lead to their preliminary diagnosis of having contagious gastroenteritis. Such patients who were suspected of suffering from contagious gastroenteritis were isolated in the private care setting until the confirmation of such through laboratory testing, faecal sampling/examination and scoring method while rest of the cases were excluded from the study. Patients having bowel cancer, irritable bowel syndrome, ulcerative colitis or any other chronic illness or pregnancy were also excluded from the study. The sample size was generated by considering the *Clostridium difficile*

presentation in 20% of the admitted cases with gastroenteritis taking margin of error as 7% and 95% confidence of interval. The patients who were admitted had clinical complaints of diarrhoea, or vomiting, abdominal cramps or pain and fever in many cases. A well standardized questionnaire was generated for documenting all the demographic as well as clinical, examined history of patients with their faecal samples' results. Additional information about travel history at least two months before gastroenteritis development, any infectious contact, recent antibiotic usage was also recorded. Data was entered and analysed by SPSS version 25. The Chi square test was applied for interpreting results. P value <0.05 was considered significant.

## RESULTS

There were more females as 81.8% in *C. difficile* cases and 48.72% in other contagious patients with gastroenteritis respectively. The age pattern showed that contagious gastroenteritis with *C. difficile* was common in 25-45 years group while 46-65 year age group was common for other contagious gastroenteritis (Table 1).

Table 1: Gender and age pattern in contagious gastroenteritis cases

Variable	<i>C. difficile</i>	Others	P value
Male	2(18.2%)	19(48.72%)	0.05
Female	9(81.8%)	20(51.28%)	0.04
<b>Age in years</b>			
25-45	6(54.54%)	11(28.2%)	0.04
46-65	33(36.36%)	19(48.75%)	0.46
66-85	2(18.18%)	23(57.07%)	0.15

Table 2: Medical and travel history of contagious gastroenteritis cases

Variable	<i>C. difficile</i>	Others	P value
<b>Medical history</b>			
Mucous prior admission	7(63.6%)	25(64.1%)	0.53
<b>Travel history</b>			
Europe	2(18.18%)	-	-
Asia	1(9.09%)	5(12.8%)	0.49
No travel	8(72.72%)	34(87.17%)	0.35

The medical history showed 63.6% *C. difficile* cases presenting with mucous in stool prior admission to the hospital while 64.1% other contagious cases presenting the same. The

Received on 13-09-2021

Accepted on 17-03-2022

travel history showed that only 2 cases from *C. difficile* traveled Europe recently while no travel history was seen among 72.72% *C. difficile* cases and 87.17% other contagious gastroenteritis cases respectively (Table 2).

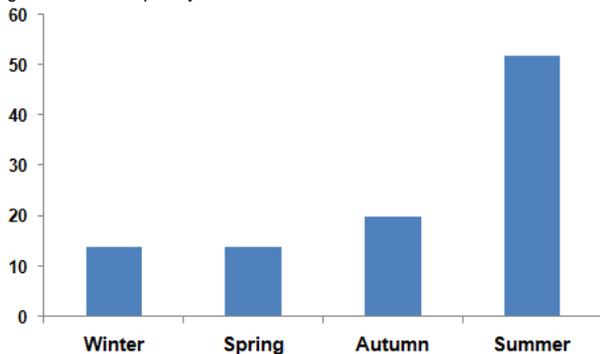
Around 45.45% patients with *C. difficile* and 51.2% other cases have a close contact with other people before admission. Also, there were 36.36% *C. difficile* cases with 1-2 month antibiotic usage history and 12.82% cases of other contagious gastroenteritis with recent antibiotic usage (Table 3).

Seasonal changes were also observed in this study. Majority of the infections were observed in summer (52%) followed by autumn (20%) and then spring and winter (14% and 14%) [Fig. 1].

Table 3: Contact with others and past antibiotic usage of cases

Variable	<i>C. difficile</i>	Others	P value
<b>Contact with other</b>			
Close contact	5(45.45%)	20(51.2%)	0.55
<b>Past antibiotic usage</b>			
Recent	1(9.09%)	5(12.82%)	
<7-15 days	3(27.27%)	2(5.12%)	<0.05
1-2 months	4(36.36%)	4(10.25%)	<0.05
Not used	3(27.27%)	28(71.79%)	<0.05

Fig 1: Patients frequency in different seasons



**DISCUSSION**

Present study highlights the associated factors with contagious gastroenteritis. *Clostridium difficile* was present in 11 patients while other patients were infected with other Infectious bacteria and viruses among which, *Salmonella* was the most common bacteria. Present study also showed that, 22 were males and 28 were female patients, showing higher trend of gastroenteritis in women. Higher age group appeared to be more affected in this study, 46-65 years was the age group in which higher number of infected patients were present. Result of the present study was in relevance with other reported data<sup>11-13</sup>.

*Clostridium* was the most prominent specie followed by *Salmonella*. *Salmonella* infection was consistent with the study conducted in US.<sup>14</sup> Important risk factors found in this study was older age and use of antibiotics.<sup>15,16</sup> Older age people is already prone to many diseases and infections due to their low immunity and known genetic changes. They easily catch infections through various viruses and bacteria. Previous use of antibiotics was also found a significant factor for the contagious gastroenteritis. Severe diarrhoea, presence of mucus in stool, low pulse rate, was considerably observed in patients infected with *C. Difficile*<sup>17</sup>. Elderly people do not always show tachycardia. The reason behind this is the presence of various heart diseases and its treatment with beta blockers<sup>18</sup>.

Travel history of the study participants was also observed in the present study. A Few numbers of individuals had travel history to Europe or Asia but most of the study participants had no travel history at all. Although a close contact with infected person was

observed in majority of the participants. This might be the reason of transmission because virus can easily be transmitted from person to person. This is considered as a known fact for individuals with gastro enteritis symptoms.<sup>19,20</sup>

**CONCLUSION**

Contagious gastroenteritis is associated with factors such as age, travelling, antibiotic usage and mucous generation.

**Conflict of interest:** Nil

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