



## PRIMARY SURVEY OF DIARRHEA PREVALENCE IN THE AMRELI REGION OF GUJARAT STATE, INDIA

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### ABSTRACT

In this primary analysis, a brief survey for diarrheal patients was carried out. This survey was kept limited to a particular region of the state of Gujarat known as Amreli district. The main objective of this study is to analyze various parameters associated with the disease diarrhea. Various pathological reports and history were collected from various pathology laboratories for analysis. Patients were analyzed based on their gender, age, WBC count, root cause of disease, source of contamination and type of microbes associate with disease. Obtained results were discussed with the other similar studies.

**KEYWORDS:** Diarrhea, Primary Survey, Amreli.

### INTRODUCTION

Diarrhea is one of the most fetal diseases which have a very high mortality rate especially in young children in developing countries like India, Pakistan, and Nigeria.<sup>[1-4]</sup>

Each year in the various countries Africa, Latin America and Asia around five to six million children below the age of 5 die due to diarrhea.<sup>[5-9]</sup> It is observed that around 80.0% of them die under the age of 2 years. In the developing countries most of the death is because of severe dehydration which results into significant loss of water and salt from the body. These water and salt is extremely needed for normal metabolic activity of the body.<sup>[10,11]</sup> Diarrhea can be defined as the disturbance of the digestion tract (gastrointestinal tract) resulted into changes in motility and absorption causing increase stool volume and change in consistency. In diarrhea, stool contains higher volume of water than the normal which is generally known as loose or watery stool.<sup>[12,13]</sup> Under various conditions blood, mucus or microbes may found in the stool which can be useful for diagnostic purpose. Diarrhea may be classified in various categories depending on the time duration of infection, quantity of stool and type of stool. Generally more than three times passage of stool within a day is refereed as diarrhea (normal diarrhea). If the diarrhea persist for less than 2 weeks than it can be classified as acute diarrhea but if the time duration extend beyond two weeks than it should referred as persistent diarrhea.<sup>[14-17]</sup>

Diarrhea can be caused by various agents these include infection by bacteria, virus and parasites, food indigestion, medicine reaction etc.<sup>[18,19]</sup> The most common route of transmission is oral infection. Apart

from this, it may also cause by consumption of contaminated water and food, person to person contact, and direct fecal matter.

Amreli is a district of the state Gujarat. It has a total population of around 12.5 lakhs distributed in 11 talukas and 595 villages. Agriculture and animal husbandry are major sources of income for the people of Amreli district. Because of improper cleanliness and sanitation, some often affected with various disease including diarrhea. So we have carried a preliminary analysis on the prevalence of diarrhea in the region.

### MATERIAL AND METHODS

Based on the medical prescription, we have selected 198 patients (n=198) coming to the pathology laboratory for various analyses. We have collected basic details like age, gender, weight, month of infection etc along with the biochemical parameters like total WBC count, hemoglobin content, presence of microorganism in stool etc. The collected data were analyzed using SPSS statistical software and obtained results were discussed in detail.

### RESULTS AND DISCUSSION

Total 198 patients were taken in to consideration for this study. Patients were initially classified as male (106) and female (96). When the age group was analyzed all of them were found to be over 40 yrs. Incidence of diarrhea were found highest in the age group of 60-70 yrs in both the gender (Fig. 1). This may be because of weakening of immunity due to age factor. Apart from this, slower recovery and delay body response to the drugs are also

an added disadvantage.<sup>[20,21]</sup> Most of the studies which have been carried out for diarrhea, they have target group of children which are below the age of five years.<sup>[7,22-24]</sup> Very less number of studies was carried out for adult patients. From the studies it was found that children are more susceptible for the diarrhea may be fetal for them especially infants or those who are less than 1 year. However, rate of infection is also high in the children up to the age of 8 - 10 years, but the mortality rate is very less. When blood samples of these patients were analyzed for total WBC count 159 patients have shown higher count whereas the rest were at the top most limit of WBC count. This indicates they must be suffering of some kind of infection (Fig. 2). Generally the counts of WBC are directly related with intensity of the infection. Here the maximum count was around 12,000 which indicate moderately higher level of infection. In many cases in was observed that the count reaches upto 15,000 to 20,000.<sup>[25]</sup> It was also found that the increase or

decrease of count is also related with the type of microbes associate with the disease.<sup>[26]</sup> Upon microbial analysis it was found that most of the patients were suffering from either streptococcus or staphylococcus infection (Fig. 3). Among all patients headache, weakness and anorexia were the most commons symptom.<sup>[27,28]</sup> However, several patients have also complained about vomiting and rhinitis (Fig. 4). When seasonal analysis was done, it was found that most prevalence of diarrhea was found the months of summer. This may be due to high temperature and dry atmosphere.<sup>[29,30]</sup> Several other studies have also noted the same observation. They have also noted that in the summer diarrhea which is caused by bacteria is most prevalence as compare to other causes.<sup>[30,31]</sup> Most of the patients were hospitalized for atleast three to four days for the treatment. Fortunately, very less number of patients has shown recurrence after the treatment.

### Agewise Diarrheal Incidences

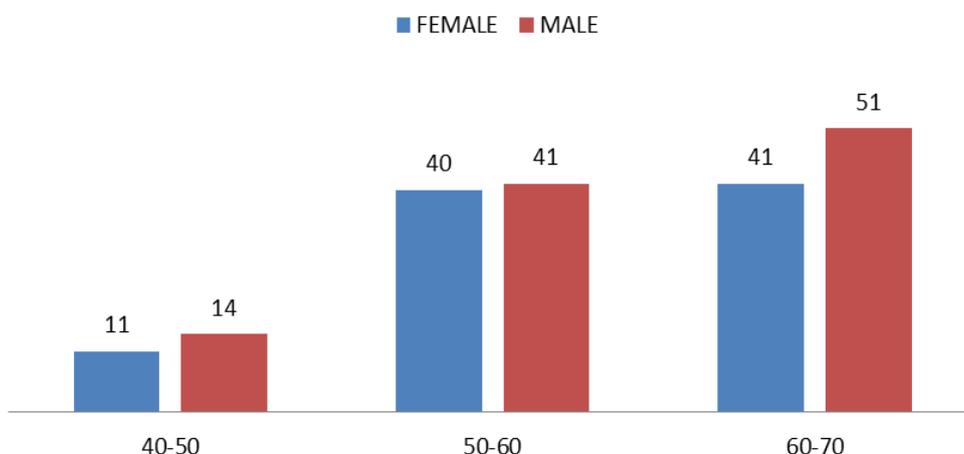


Fig 1: Agewise distribution of diarrheal patients.

### Total WBC counts in patients

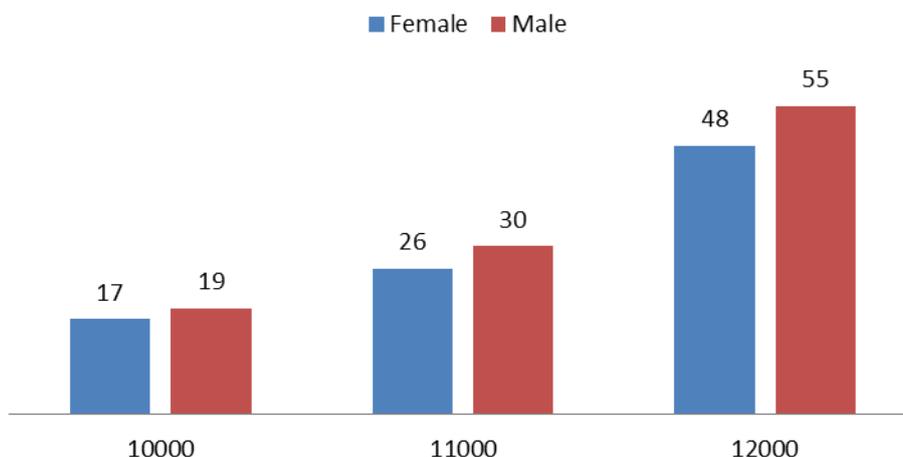


Fig 2: Total WBC Count in Diarrhea Patients

## Microbial Analysis of Patients Sample

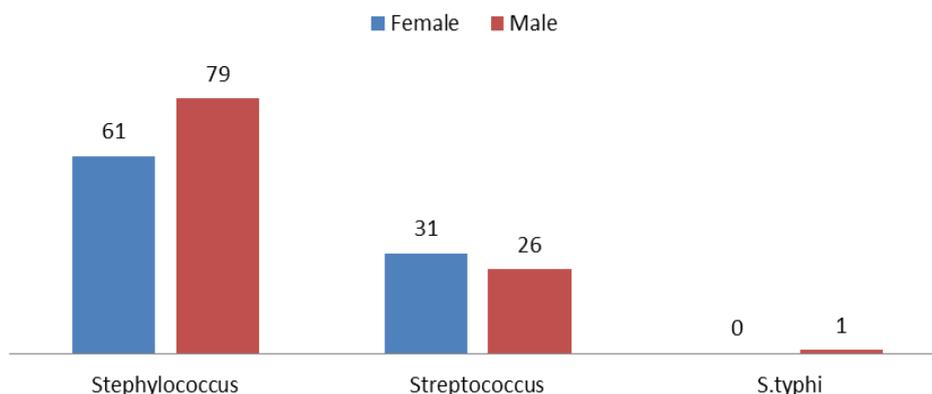


Fig: 3 Microbial Analysis of Diarrhea Patients

## Prevalence of symptoms in patients

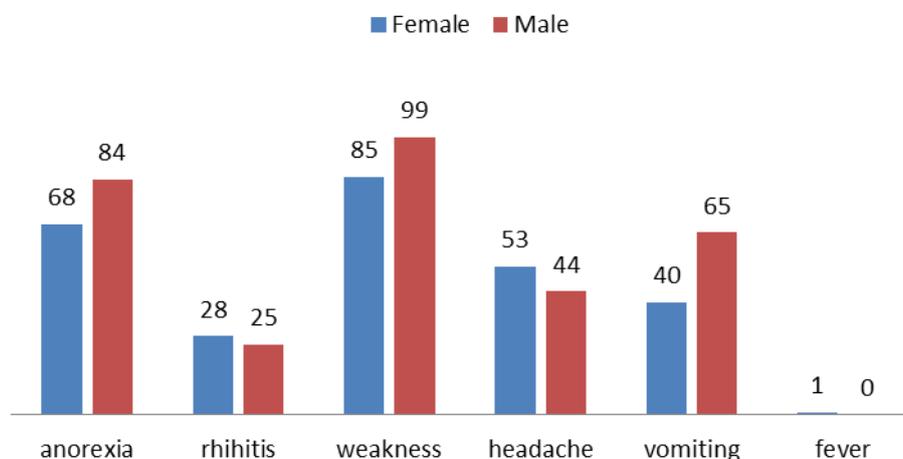


Fig 4: Various common symptoms of diarrhea patients.

### CONCLUSION

Based on this preliminary study, it was found that the rate of infection of diarrhea in Amreli district is very high in upper age people. The most common cause of infection was microbial infection, which was cured with antibiotics during hospitalization. However a detail study is require to find out the exact cause and route of infection.

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