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Microbiology

Study of Bacteriological Profile of Diarrhoeal Cases in a Tertiary Care Hospital

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Abstract **Original Research Article**

In developing country approximately 2 million people die from diarrhoea. Diarrhoeal diseases occurre due to unsafe water and lack of sanitation in poor countries. Diverse etiological agents are responsible for diarrhoea of which bacteriological aetiology predominates. This study was conducted in department of Microbiology to know the etiological agent of diarrhoea in rural population. Stool samples were collected in sterile container and inoculated on media for isolation. The isolated organisms were identified by standard methods and their antibiotic sensitivity pattern was observed by disc diffusion method. Out of 82 stool specimens, 47 samples showed bacterial growth. E.coli 93.61%, Vibrio 4.25 % and Shigella 2.12% were isolated. About 81.81% strains of E.coli were susceptible to Chloramphenicol. All Vibrio isolates were susceptible to Norfloxacine, Cefotaxime, Cotrimoxazole, and Tetracycline. Shigella was sensitive to all drugs tested. All strains of E.coli, Vibrio, Shigella were resistant to Ampicillin.
Keywords: Diarrhoea, stool, organisms.

INTRODUCTION

In developing countries, approximately 2 million people, the vast majority of whom are under-five children, die from Diarrhoea each year. Nearly 90% of Diarrhoea is attributed to unsafe drinking water, inadequate sanitation and poor hygiene .Diarrhoeal disease due to unsafe water and lack of sanitation is the greatest cause of morbidity and mortality in under-five children in the world, especially in poor countries [1]. Etiological agents responsible for Diarrhoeal diseases are diverse, which includes, bacterial pathogens, parasites, viruses and fungi, however, the prevalence of the etiological agents varies with geographical locations, meteorological characteristics, severity of infections, and laboratory techniques employed [2]. To know the bacteriological etiology of Diarrhoea a study was carried out in Department of Microbiology in a tertiary care hospital.

METHODOLOGY

Prospective study was carried out in the department of Microbiology. Stool samples received in the department of microbiology were included in this study. The entire stool specimen were inoculated on Blood agar and Mac Conkey agar and incubated at 37º C for 24 hours. The colonies were identified by standard methods [3]. Antibiotic sensitivity testing of isolated organisms was done according to the CLSI GUIDELINES.

RESULTS

Table-1: Total number of samples collected – 82

Total Samples	Male	Female
82	43	39

Table-2: Number of organism Isolated (n) – 47

Organisms Isolated	Number of Isolates
E.coli	44
Vibrio	2
Shigella	1

Out of the 82 stool specimen collected pathogenic organisms were isolated from 47 samples.

Table-3: Antibiotic Sensitivity of Isolates

Antibiotics	E.coli (44)		Vibrio(2)		Shigella (1)	
	No.	Percentage	No.	Precentage	No.	Percentage
Ampicillin	0	00	0	00	0	00
Norfloxacin	8	18.18	2	100	1	100
Cefotaxime	8	18.18	2	100	1	100
Chloramphenicol	36	81.81	1	50	1	100
Cotrimoxazole	6	13.63	2	100	1	100
Tetracyclin	8	18.18	2	100	1	100

About 81.81% strains of E.coli showed sensitivity to Chloramphenicol and all the strain were resistant to Ampicillin. Both the strains of vibrio showed 100% sensitivity to Norfloxacin, cefotaxime, cotrimoxazole and Tetracycline. Whereas Shigella was sensitive to all drugs tested except Ampicillin

DISSCUSSION

In this study E.coli was the most common pathogen (93.61%). In a study conducted by N.Kaminski 37 % enteric pathogen were isolated of which Shigella species were the most common group of bacteria [4].

Fereshteh Jafari reported 42 % Shigella species followed by 38.8 % E.coli in his study [5]. Aeromonas species 16.3 % was the most predominant species followed by E.coli 9.4 % in a study done by Neupane [1]. Sherchand *et al.* reported higher incidence of Shigella species 36.8 % and Salmonella species 14.03 % [6]. In our study antibiotic resistance pattern shows that about 81.81 % strains of E.coli are sensitive to Chloramphenicol and all strains of E.coli are resistant to Ampicillin. Neupane reported Amikacin 94 % as the most effective antibiotic followed by Chloramphenicol 76.2 % [1]. In our study Shigella is 100 % sensitive to Chloramphenicol and Cotrimoxazole while Neupane reported 100 % sensitivity to Chloramphenicol and 50 % resistance to Cotrimoxazole [1]. In a study carried out by Ansari *et al.* 91.7 % Shigella isolates were susceptible to Gentamycin followed by 87.5 % to Amikacin [7].

CONCLUSION

This study was carried out in a rural tertiary care hospital. This study indicates the common bacterial causes of diarrhoea along with their antibiotic sensitivity pattern. This will help in proper management of patients with proper empirical treatment.

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