

Clinical Profile and Antibiotic Resistance of *Aeromonas* Species Isolates from Invasive Diarrhoeal Patients

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Introduction

Diarrhoea is one of the leading causes of morbidity and mortality in developing country.¹ It is estimated that each year, 1.67 billion episodes of diarrhoea occur in children under five years of age and 430 million episodes occur in adults >16 years of age.¹ The burden is highest in the African and Asian continents. *Aeromonas* is a significant enteropathogens responsible for causing childhood diarrhoea in Asia, especially in Pakistan and Bangladesh. *Aeromonas spp.* have been reported to cause various illnesses in human such as peritonitis, pneumonia, septicemia and wound infection. *Aeromonas* are motile, gram-negative facultative anaerobic bacilli that cause gastroenteritis. They are widespread in nature and commonly isolated from diarrheal specimens in tropical countries.¹

Objective

This analysis was performed to examine whether *Aeromonas* was associated with invasive diarrhoeal illness and to compare the clinical features, the multidrug resistance patterns to *Shigella* induced diarrhoea.

Methodology

Study site: icddr,b, Dhaka Hospital.

Study population and selection criteria: Patients with symptoms of invasive diarrhoea defined as diarrhoeal illness lasting less than 96 hours with mucus in the stool, abdominal pain, with or without blood were enrolled in this study.

Study period: January 2019 - September 2019

Sampling Technique: In total 14,840 diarrheal patients were screened for suspected case of invasive diarrhoea. Stool samples were collected from 3,272 suspected invasive diarrhoeal patients with informed consent.

Laboratory Technique: Specimen were sent for microscopy. If microscopic examination revealed WBC>10/HPF with any RBC present in the specimen then it was immediately sent to the Clinical Microbiology Laboratory at icddr,b for stool culture. Culture was performed on 776 stool samples

Freshly collected stool specimen were inoculated onto MacConkey, *Salmonella-Shigella* agar plates for *Shigella* and *Salmonella* isolation, and taurocholate-tellurite-gelatin agar media for *Vibrio* and *Aeromonas*, and *Brucella* agar media for *Campylobacter* isolation and interpreted according to the Clinical and Laboratory Standards Institute guidelines.²

Data analysis: Chi-square test (p value <.05 was considered as significant).

Results

- No bacterial pathogen was isolated from 419 out of 776 (54.0%) stool samples.

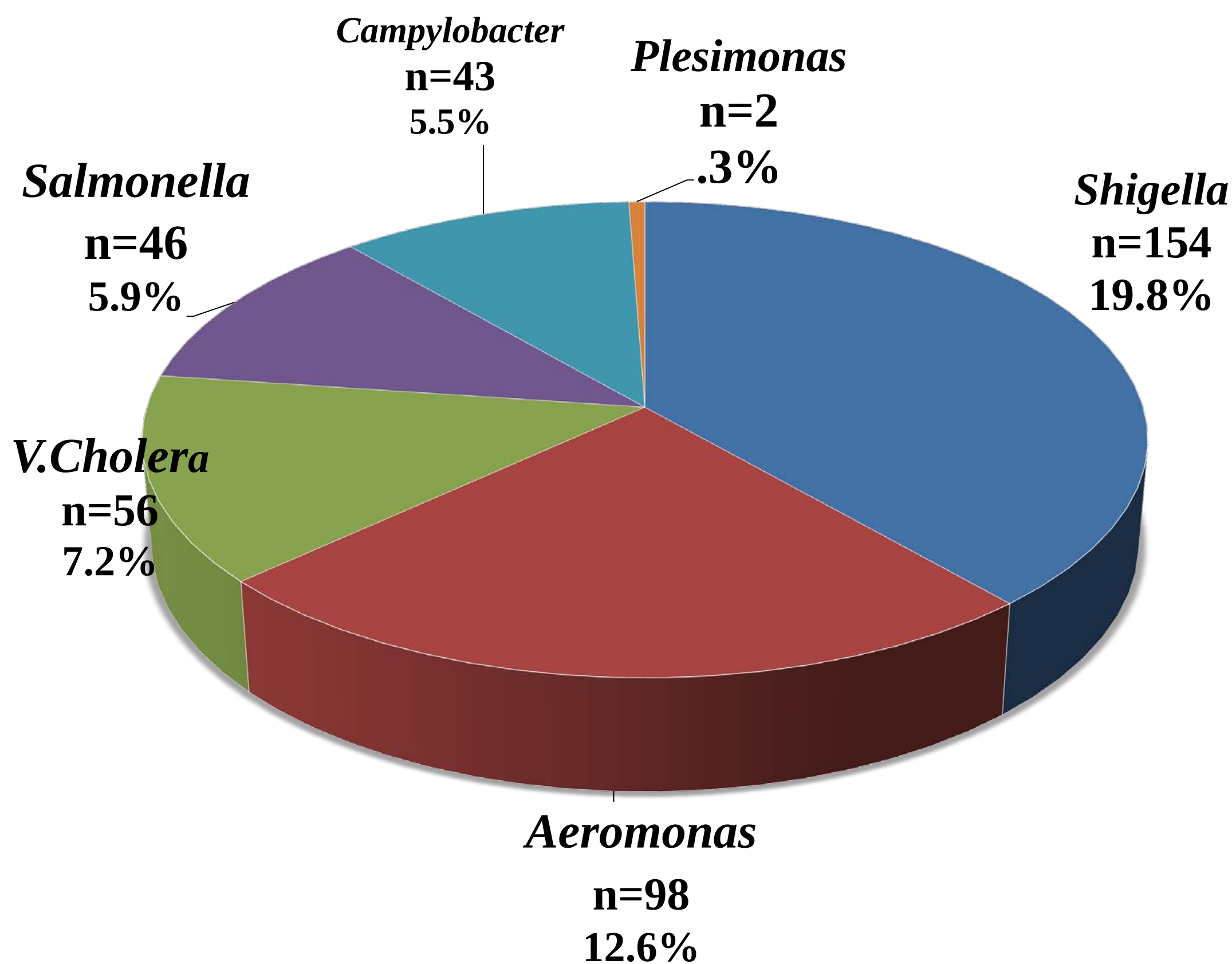


Figure :1 Leading Causes of Invasive Diarrhoea

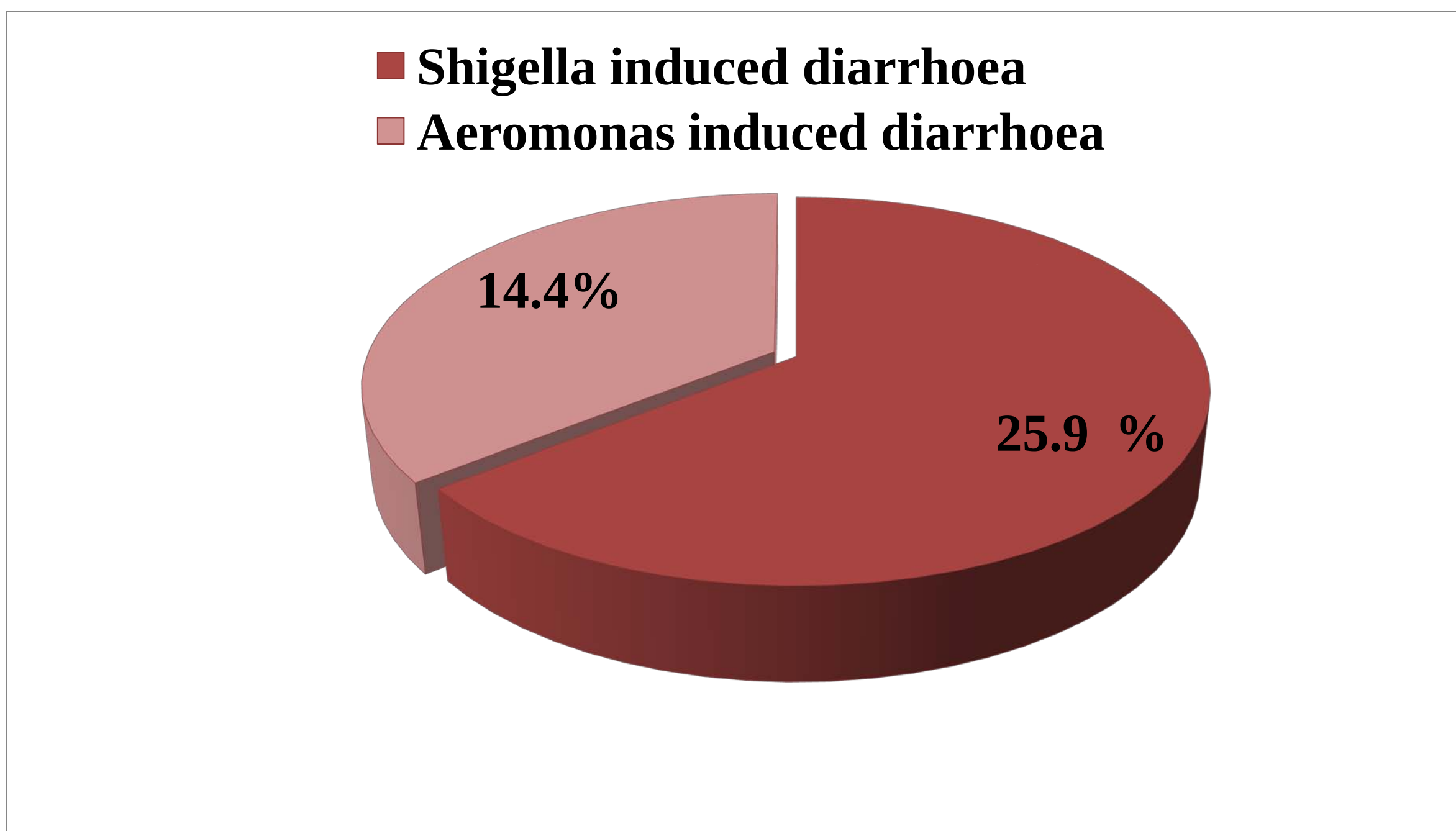


Figure :2 Distribution of Invasive Diarrhoea among Children

- History of fever at enrollment was present in 76.5% of *Aeromonas* induced invasive diarrhoeal patients as compared to 92.2% of *Shigella* induced invasive diarrhoea patients (p=0.0005).
- Visible blood was present in 28.6% of *Shigella* induced diarrhoea patients whereas, only 9.2% of *Aeromonas* induced diarrhea patients (p=0.0002).

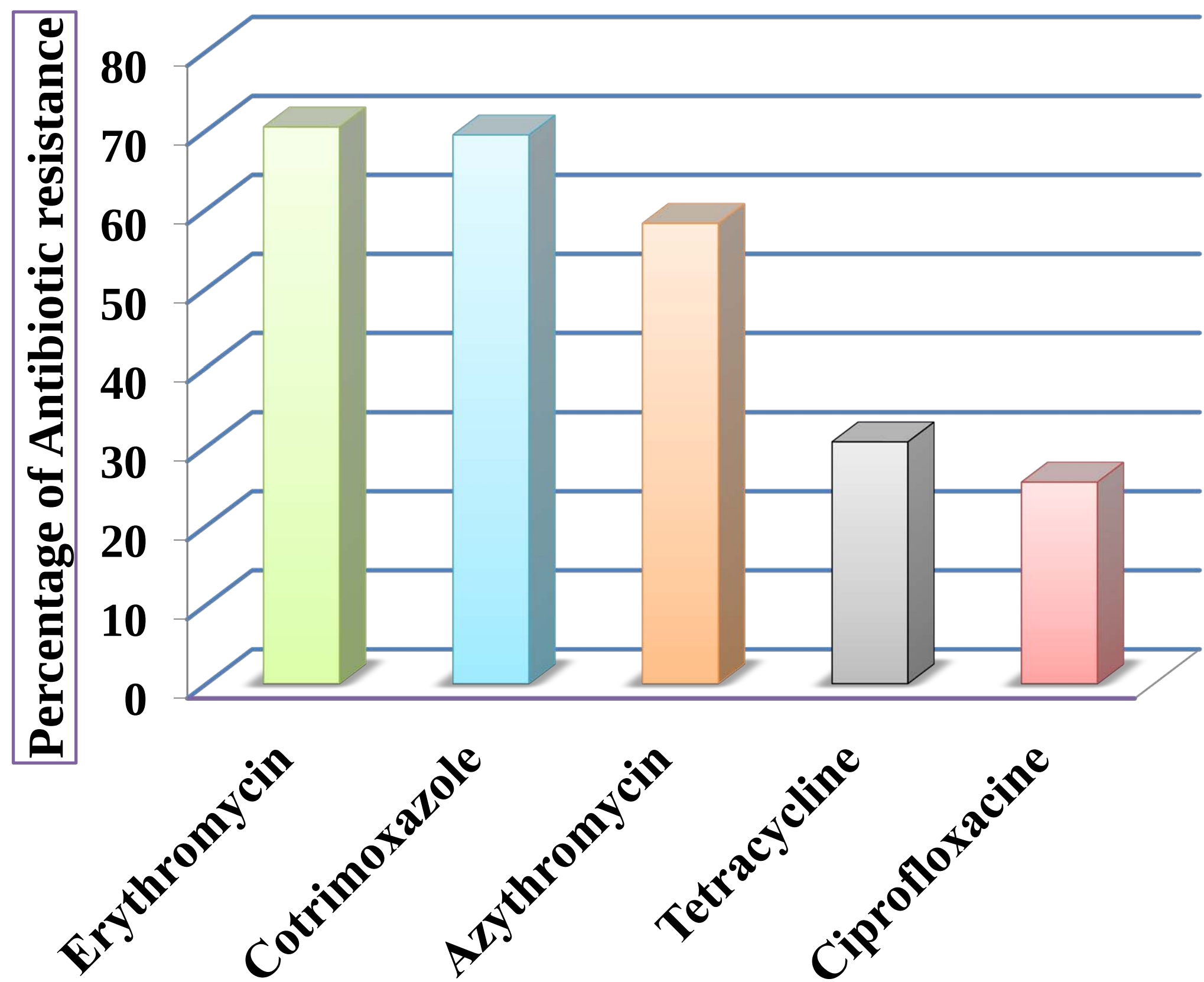


Figure:3 Antibiotic resistance

Conclusion

Aeromonas spp. was the second leading etiology of invasive diarrhoea in our study. Clinical outcome of *Aeromonas* induced invasive diarrhoea was less severe in comparison to *Shigella* induced invasive diarrhea. Multidrug antimicrobial resistance was observed in the *Aeromonas* isolates.

References

- 1.Mohan B, Sethuraman N, Verma R, Taneja N. Speciation, clinical profile & antibiotic resistance in *Aeromonas* species isolated from cholera-like illnesses in a tertiary care hospital in north India. Indian J Med Res. 2017;146(Supplement):S53–S58. doi:10.4103/ijmr.IJMR_378_15
- 2.National Committee for Clinical Laboratory Standards (NCCLS, 1990)

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