SHIGELLA FLEXNERI INFECTED ADULT MORTALITY DUE TO RESISTANT DIARRHEA: A CASE REPORT

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Abstract

Introduction: Severe complications occur each year due to bacterial pathogens that cause diarrhea. Most diarrhea related mortality occurs in developing countries.

Case report: a 49 year old male was admitted to hospital due to generalized abdominal pain, watery and then infectious diarrhea two weeks prior to admission. The patient experienced weakness, lethargy, bone pain and headache during hospitalization. Broad spectrum antibiotics were administrated. However, the patient’s condition worsened and he went into comma that led to death. Shigella Flexneri resistant to treatment was isolated from stool culture.

Conclusion: This was a treatment resistant diarrhea due to Shigella Flexneri. Gastrointestinal Shigella Flexneri infection and its increasing antibiotic resistance are turning into a worldwide burden. Recognizing its resistance and antibacterial sensitivity can play a crucial role in patient treatment.

Introduction

Helicobacter Pylori is the most prevalent bacterial diarrhea is one of the most important issues of general health. According to WHO, 4.5 billion cases of diarrhea occur each year. During 2002, 1.8 million cases of diarrheal disease led to death. Approximately, 99% of these deaths occur in developing countries¹. The most common isolated pathogens are Shigella species. Almost five to 15 percent of all diarrhea cases are related to Shigella and 1.1 million patients face death. Two thirds of mortality cases occur among children below five years old²-⁴. Shigella is a gram negative intra-cellular pathogen. Shigella species are transmitted through fecal oral route. These bacteria have high multiplicity and ten to 100 bacteria are enough for infection⁵. Infection with this pathogen induces a severe acute inflammatory bowel disease which is diagnosed with watery diarrhea and purulent discharge. Colon biopsy reveals infiltration of inflammatory cells, tissue edema, epithelium destruction, and involvement of epithelium cells in lymphoid follicles⁶-⁸.

Case presentation

The patient was a 49 year old male who was admitted due to generalized abdominal pain, nausea, vomit containing food, and watery diarrhea two weeks prior to hospitalization. The patient later developed inflammatory diarrhea, weakness, lethargy, bone pain, and frontal headache. He referred to the hospital several times and was managed as an
outpatient. However, since he was not recovered, the patient was hospitalized in the gastroenterology service of Shahid Mohammadi Hospital of Bandar Abbas. Physical examination revealed generalized abdominal tenderness and guarding. The upright abdominal x-ray showed four air-fluid levels. Surgical consult was requested and the surgeon denied the possibility of obstruction. Infectious diseases consult transferred the patient to the infectious diseases ward with the impression of typhoid disease. Past medical history only showed one previous hospitalization due to lower extremity infection. Also, the patient was an opium addict who use orally along with tea. On admission laboratory data was as shown below

The patient was admitted to the infectious diseases ward with the impression of treatment resistant bacterial infection. Broad spectrum antibiotics such as ampicillin, cotrimoxazole, Chloramphenicol, nalidixic acid, and tetracycline were administrated. Stool culture was ordered and many consults were ordered during hospitalization:

Surgical consult was ordered on admission with the impression of intestinal obstruction. Anesthesia consult was ordered on day six for intubation. Cardiovascular consult was requested on day seven for echocardiography and rheumatology consult was requested to rule out polyarthritis nodosa. GI, hematology and internal medicine consult were ordered for GI diseases, plasmapheresis due to antineutrophil cytoplasmic antibody associated disease induced by drugs. Surgical consult was requested again for catheter insertion to reduce plasmapheresis toxicity. Endocrinology consult was ordered to evaluated patients high blood sugar and potassium. Anesthesia consult was again requested on the tenth day for operation permit. The last laboratory data were ordered on the 11th day and the results are as shown below.

The patient’s condition worsened and despite all efforts and his level of consciousness decreased. Then the patient was transferred to the intensive care unit with the impression of sepsis and was intubated. On the 12th day of hospitalization, the patient went into cardiac arrest and routine cardiopulmonary resuscitation (CPR) was performed for 45 minutes. Atropine, epinephrine, and dopamine were administered during CPR. However, no progress was made and the patient expired. The stool culture showed that shigellaflexneri was the infecting pathogen in central laboratories Tehran.

Conclusion

The presented case was a treatment resistant shigellaflexneri diarrhea. Nowadays, gastrointestinal infection of different species of shigella and their antibiotic resistance is a major problem. Knowledge towards the resistance and antibiotic susceptibility of this pathogen can play a crucial role in the treatment of patients. A study in the United States showed that the antibacterial resistance of shigella was changed from three percent in 1983 to 21% in 1985(9). Another study in Brazil during 1988 - 1993 showed that 73% of species isolated from diarrhea samples were shigellaflexneri. More than 50% of them were resistant to ampicillin, cotrimoxazole or both. Also, more than 64% were resistant to tetracycline and Chloramphenicol(10).

Another study in Pakistan showed that all shigella species were susceptible to ceftriaxone. However, cotrimoxazole resistance, ampicillin resistance and nalidixic acid resistant were seen in 87.75%, 55.5% and 39%, respectively(11).

In Ethiopia, shigellaflexneri (prevalence of 54 percent) was the most common pathogen isolated from stool cultures. Resistant rate of this pathogen to tetracycline, ampicillin and cotrimoxazole was 75 percent and gentamicin and nalidixic acid resistance was 100 percent and 97.3%, respectively(12).

Another study in Uganda showed that shigella resistance towards cotrimoxazole and nalidixic acid was high.

However, the pathogen was 100% susceptible to ciprofloxacin(13). Another study conducted in Iran showed that shigellaflexneri was the most common isolated pathogen from stool cultures (prevalence of 50%). The antibiotic resistance was as followed: cotrimoxazole: 87.75%, ampicillin: 37.5%, tetracycline: 68.75%, kanamycin: 37.5%, cephalxin: 18.75%, cloramphenicole and gentamicin: 12.5%, amikacin and ceftriaxone: 8.33%, nalidixic acid: 4.15%, cefixim and ceftriaxone: zero%(14).

Different studies showed that shigellaflexneri antibiotic resistance rate was 21% to 100% to cotrimoxazole, 16% to 75% to ampicillin, 30% to 75% to cloramphenicol, 4.14% to nalidixic acid, 64% to 75% to tetracycline(11, 13, 15-17).

According to the reported case, we can conclude that the resistance of shigellaflexneri towards broad spectrum antibiotics has increased in Iran.

In this case report Shigellaflexneri resistant to ampicillin, cotrimoxazole, nalidixic acid, and ciprofloxacin.
References


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