

Original Research Paper

MISUSE OF ANTIBIOTICS IN DIARRHOEAL DISEASES

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Acute diarrhea remains one of the most important health issues worldwide. It is the commonest infectious disease in developing countries, mostly affecting children younger than five years old. Most cases are caused by virus and tend to present in a mild and self-limiting fashion, with the optimal treatment consisting solely of oral rehydration and nutritional support. Inappropriate use of antimicrobials is associated with allergic reactions, toxicity, super infection, and development of antimicrobial resistance. The excessive and inappropriate use of antibiotics adds an unnecessary economic burden to health care system and coincides with increase in drug resistant organisms. This study was undertaken with the aim to determine the percentage of children not needing antibiotics for acute diarrheal disease. Total 150 children between age group of 6 months-5 years admitted for age were taken into study and started on ORS + zinc therapy and stool culture with stool routine and microscopy was sent. Only patients presenting with blood and mucus or culture positive were started on antibiotics. Patients with dehydration were managed as per WHO guidelines. None had mortality. Study was conducted from June to September 2016. Data was analysedusing McNamara chi square test. Results: Out of 150 patients only 10 patients only 10 patients only 10 patients only 10 signs of bacterial infection. Only 4 out of 150 that is 2.6% had culture positive. The result was statistically significant with a P value < 0.023, Sensitivity:40%, Specificity: 100%, NPV: 100%, NPV: 95.89%

KEYWORDS : antibiotics, Diarrhea, missuse of antibiotic, antibiotic resistance

INTRODUCTION:

Acute diarrhea remains one of the most important health issues worldwide, with high morbidity and mortality rates, accounting for more than two million deaths annually(1,7). Acute diarrhea is the commonest infectious disease in developing countries, mostly affecting children younger than five years old. Whereas most cases of acute diarrhea are caused by virus, such as rotavirus and enteric adenovirus, and tend to present in a mild and self-limiting fashion, with the optimal treatment consisting solely of oral rehydration and nutritional support. Supportive antidehydration therapy, associated with adequate nutritional support, is the cornerstone of therapy, regardless of the etiology and the severity of the process, and its prompt and early adoption is associated with a favorable outcome.

Antimicrobial agents are among the most frequently prescribed drugs. Inappropriate use of these agents is associated with allergic reactions, toxicity, super infection, and more importantly development of antimicrobial resistance(3). The excessive and inappropriate use of antibiotics adds an unnecessary economic burden to health care system and coincides with increase in drug resistant organisms(4). It has been observed in many studies that patients with drug resistant organisms require longer hospit alization and had increased risk of mortality(4). Rational drug therapy is defined as the use of drugs only when there is specific need. Once the need has been established, then a proper drug has to be selected on the basis of efficacy, safety, cost, effectiveness, availability, acceptability, and dosage form(5). On the other hand, inappropriate or irrational use of drugs is described by James Trostle as "consumption of drugs in a way that reduces or negates their efficacy or in a situation where they are unlikely to have desired effect"(5)

there are several arguments against the empirical use of antibiotics for acute infectious diarrhea. The most compelling of them is the fact that acute infectious diarrhea is typically a self-limiting disease, regardless of its etiology, with most cases resolving in less than three days(8). Moreover, one must consider the low incidence of treatable pathogens among the causative agents of acute diarrhea (which are

viruses in most cases), the possible occurrence of side effects, the potential development of resistant strains, the cost of treatment, and a possible noxious effects on the disease itself, as seen with enterohemorrhagic E. coli (EHEC) and non-typhoidal Salmonella. Additionally, virtually all oral antimicrobials are able to cause, or worsen, diarrhea because of their effect on gut microflora. Oral antimicrobials may also have their efficacy reduced by impaired intestinal absorption and enhanced intestinal motility. Given the self-limiting nature of the disease, most patients with acute diarrhea do not require laboratorial evaluation and can be safely managed as outpatients. Severely ill patients may need hospitalization and further investigation, including complete blood counts, electrolyte dosing and stool culture. While stool cultures and antimicrobial testing of the isolates are the best way to select the most adequate antimicrobial regimen, the results are only available after 72 hours or more. In some instances, it is possible to wait for the result; often cases improve substantially during this interval and the use of antibiotics is no longer required when the results become available, even if enteropathogenic bacteria are identified.

AIM:

To determine the percentage of children not requiring antibiotics for acute diarrheal disease

OBJECTIVE:

Outcome of diarrheal disorders without use of antibiotics.

STUDY DESIGN:

Prospective cohort study

METHOD:

Children between age group of 6 months to5 years admitted for acute gastroenteritis were taken into study who consented for study, prior institutional ethics committee clearance was obtained. Each subject was started on ORS + zinc therapy and stool culture with stool routine and microscopy was sent. Only patients presenting with blood and mucus in stools or stool culture positive were started on antibiotics as per culture sensitivity reports. If the patients were in dehydration management as per WHO guidelines were initiated. None had mortality. Study was conducted from June to September 2016. Total 150 patients were enrolled for the study. Data was analysed using McNamara chi square test
1.INCLUSION CRITERIA:

- All patient of diarrheal disease admitted in our hospital **2. EXCLUSION CRITERIA:**
 - Patient on Preantibiotic therapy

RESULTS:

Out of 150, 10 patients presented with history of blood and mucus in stools, which amounts to 6.6%. out of which 4 had culture positive, where the organism grown was E. coli. Rest stool culture were negative.

Out of 150 patients only 10 patients that is 6.6% had history and signs of bacterial infection. Only 4 out of 150 i.e 2.6% had stool culture positive.

Table 1:1- Showing culture positivity and negativity in patients with dysentery and diarrhea

	Blood and mucus	Blood and mucus	Total
	positive	negative	
Culture positive	4	0	4
Culture negative	6	140	146
Total	10	140	150

*P value: < 0.023, Sensitivity: 40%, Specificity: 100%, PPV: 100%, NPV: 95.89%

CONCLUSION:

There are plenty of antibiotics currently available for the treatment of acute infectious diarrhea in children. While antibiotics are effective against most bacteria and may help shorten the duration of symptoms, it must always be kept in mind that antimicrobial therapy should be reserved for severe, prolonged or potentially complicated cases, as most patients respond fairly well to supportive therapy, and their indiscriminate use carries the danger of increasing antimicrobial resistance and brings no benefit to patients with mild presentations, as has been shown for uncomplicated salmonellosis (6). Use of antibiotics not only harm the patients but also evoke economic burden on the family. Additionally, most diarrheal episodes affecting children are due to viruses, parasites, chemical agents and food intolerance, none of which requires antimicrobial therapy. We reinforce the need for careful consideration of the use of antibiotics in the setting of acute diarrhea in children.

We emphasize that most cases of acute diarrhea involve a selflimiting condition, requiring no more than supportive treatment with adequate hydration and nutrition that can be accomplished at home. The physician should make the patient's parents aware of warning signs that depict aggravation of the picture and the need for returning to the hospital for re-evaluation. The parents should also be informed about the routes of transmission of enteropat hogens and about preventive measures. While antibiotics may play a major part in reducing mortality among severely-ill patients, the ultimate approach against diarrhea in developing countries rests on the need for improving sanitary conditions, maintaining exclusive breastfeeding until the sixth month of life and developing safe and effective vaccines for immune prophylaxis, along with systematic parental education.

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