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Case Report

Combination of zinc and probiotic for acute diarrhoea in adult

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ABSTRACT

In Indonesia, diarrhea affected 9% of the population and was the fourth most common cause of death across all age groups (13.2%). Case 1: A 33-year-old female presented to the emergency room with a history of diarrhea without bloody or oily stools, nausea and vomiting. The patient was assessed with noninfective gastroenteritis, suspected to be caused by viruses. She was given rehydration therapy, symptomatic therapy, with combination of zinc and probiotic. Case 2: A 25-year-old female presented to the emergency room with a history of diarrhea without bloody or oily stools and mild epigastric pain. The patient was assessed with noninfective gastroenteritis, suspected to be caused by viruses. She was given rehydration therapy, symptomatic therapy, with combination of zinc and probiotic. The primary foundation treatment for acute diarrhea includes prescribing zinc and probiotic supplements to aid in recovery. Probiotics may have an impact on a variety of innate and acquired immunity-related cells, while zinc is an essential element of all highly proliferating cells in the human body. It plays a critical role in modulating resistance to infectious agents and reduces the duration, severity, and risk of diarrheal disease. Our case highlights that, combination of zinc and probiotic give a significant effect not only in children, but also in adult. Zinc and probiotic can help fasten the recovery phase of diarrhea and decrease the mean duration of acute diarrhea.

Keywords: Adult, Diarrhea, Probiotic, Recovery, Zinc

INTRODUCTION

In Indonesia, diarrhea affected 9% of the population and was the fourth most common cause of death across all age groups (13.2%). An estimated 5,405,235 cases of diarrhea were reported nationwide, with morbidity rate of 214/1,000. In Indonesia, parasites, bacteria, and viruses can cause severe diarrhea. *Vibrio cholerae, Vibrio parahaemolyticus, Escherichia coli, Campylobacter jejuni, Salmonella spp, Clostridium difficile, Yersinia enterocoiltica, and Shigella spp* are the bacterial pathogens responsible for severe diarrhea.

Rotavirus, Norovirus (Calcivirus), Adenovirus, Astrovirus, Cytomegalovirus, and Coronavirus are the viruses that cause diarrhea. However, the parasites consist of helminthes (Strongyloides) and protozoa (*Giardia lamblia*, Cryptosporodium).[1] Acute diarrhea is most commonly caused by viral infections. Travel, concomitant conditions, and foodborne illness are more frequently associated with bacterial infections.[2] The cause of acute diarrhea must be identified before start the treatment. It is advised to administer supportive therapy along with early refeeding and hydrating, irrespective of the etiology. Nutrients, electrolytes, and water are the first steps in supportive management.

Since most episodes of acute watery diarrhea are self-limited, prescribing antibiotics is not always advised.[3] Depending on the organism, targeted antibiotic therapy may be appropriate once a pathogen has been identified.

Recent research revealed that combination of probiotics and zinc help fasten the recovery phase of diarrhea and decrease the mean duration of acute diarrhea.[1] The aim of this study is to identify the advantages of using combination of zinc and probiotic as the treatment of diarrhea in adults.

CASE REPORTS

Case 1

A 33-year-old female presented to the emergency room with a history of diarrhea without bloody or oily stools about 8 times, 2 days before being admitted to the hospital. She also had nausea and vomiting more than 5 times during those times, low intake, abdominal and epigastric pain. On presentation, she was conscious, oriented, heart rate of 85/minutes, blood pressure of 110/70 mmHg, and warm peripheries. A CBC was done, showing normal values. Electrolytes test showing hypokalemia.

A complete fecal test was done in the hospital, showing no erythrocytes, leucocytes, fungi, or mucous but positive fat. The patient was assessed with noninfective gastroenteritis, suspected to be caused by viruses. She was given rehydration therapy, antidiarrhea (attapulgite+pectin) 3 times a day, ondansetron 4 mg, 3 times a day, lansoprazole 30 mg, once a day, and oralit and potassium chloride tablets 600 mg, 3 times a day for 3 days.

On the first day of treatment, the complaint of diarrhea did not stop; the attapulgite switched to loperamide and added a combination of zinc (20 mg) once a day and probiotics twice a day. On the next day, the symptoms relieved, and the patient was discharged.

Case 2

A 25-year-old female presented to the emergency room with a history of diarrhea without bloody or oily stools about 6-8 times, 2 days before being admitted to the hospital. She felt a bit nauseous and epigastric pain. On presentation, she was conscious, oriented, heart rate of 60/minutes, blood pressure of 104/64 mmHg, and warm peripheries. A CBC was done, showing normal values. Electrolytes test in normal limit.

A complete fecal test was done in the hospital, showing no erythrocytes, leucocytes, fungi, fat or mucous. The patient was assessed with noninfective gastroenteritis, suspected to be caused by viruses. She was given rehydration therapy, antidiarrhea (attapulgite+pectin) 3 times a day, oralit ad libitum, zinc (20 mg), once a day and probiotics twice a day. On the next day, the symptoms relieved, and the patient was discharged.

DISCUSSION

Due to frequent contact with the external environment, primarily through the mouth, the gastrointestinal tract is a susceptible organ for infections. Nausea, vomiting, and diarrhea can result from gastroenteritis, an inflammation of the intestines and stomach. One of the most frequent causes of death, gastroenteritis accounts for two to three million deaths annually.[4] Symptom onset, severity (volume, frequency, duration of diarrhea), stool characteristics, and a focused evaluation of systems, such as vomiting, fever, decreased urine output, and abdominal discomfort, should all be included in a patient's history if they have acute gastroenteritis. Stool testing is not necessary for the majority of immunocompetent patients with acute, non-bloody diarrhea who do not have systemic symptoms. Patients with acute bloody diarrhea, fever, severe abdominal pain, symptoms of sepsis, or duration of seven days or more, as well as those with occupational or residential risk factors for an epidemic, should have stool investigations performed.[5]

The recommended technique for replacing lost fluid is oral rehydration. Since most episodes of acute watery diarrhea resolve on their own, prescribing antibiotics is not always advised. Empirical antibiotics should only be administered in certain situations in order to prevent antibiotic overuse and its associated side effects.[3] The primary foundation treatment for acute diarrhea includes prescribing zinc and probiotic supplements to aid in recovery.[6]

Certain bacterial strains have the ability to affect the intestinal mucosal barrier, the gut luminal environment, and the mucosal immune system. Probiotics may have an impact on a variety of innate and acquired immunity-related cells, including DCs, monocytes, macrophages, lymphocytes, natural killer (NK) cells, and epithelial cells. The pattern recognition receptors (PRRs) expressed on immune (M cells in Peyer's patches) and non-immune (intestinal epithelial cells) cells may be specifically activated by them. TLRs are the most researched PRRs because they can trigger signaling cascades that modulate the immune system by causing cell proliferation and the release of cytokines.[7]

All of the body's highly multiplying cells depend on zinc as a necessary component. It is essential in controlling the body's response to infectious agents and lowers the chance, intensity, and length of diarrheal illness.[8] Regardless of zinc availability, in vitro studies demonstrating that zinc directly impacts intestinal ion transport in Caco-2 cells and in the rat, ileum suggest a potential therapeutic function for zinc in the treatment of acute diarrhea.[9] Zinc supplementation was found to considerably shorten the duration of acute diarrhea ($p=0.027$) and nausea ($p=0.032$), according to a study. As a result, for adult patients with acute diarrhea, zinc supplementation may be viewed as an extra treatment.[10]

CONCLUSION

Our case highlights that, combination of zinc and probiotic give a significant effect not only in children, but also in adult. Zinc and probiotic can help fasten the recovery phase of diarrhea and decrease the mean duration of acute diarrhea.

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REFERENCES

1. Simadibrata M, Adiwinata R. Current Issues of Gastroenterology in Indonesia. Acta Med Indones. 2017;49(3):245.
2. Barr W, Smith A. Acute Diarrhea in Adults. Am Fam Physician. 2014;89(3):180–9.
3. 3. Meisenheimer ES, Epstein C, Thiel D. Acute Diarrhea in Adults. Am Fam Physician. 2022;106(1):72–80.
4. Oude Munnink B, Van Der Hoek L. Viruses Causing Gastroenteritis: The Known, The New and Those Beyond. Viruses. 2016;8(2):42.
5. Sokic-Milutinovic A, Pavlovic-Markovic A, Tomasevic RS, Lukic S. Diarrhea as a Clinical Challenge: General Practitioner Approach. Dig Dis. 2022;40(3):282–9.
6. Simadibrata M. Revealing the effect of probiotic combination: Lactobacillus rhamnosus and Lactobacillus acidophilus (Lacidofil) on acute diarrhea in adult patients. J Clin Med Res. 2013;5(2):23–8.
7. Cristofori F, Dargenio VN, Dargenio C, Miniello VL, Barone M, Francavilla R. Anti-inflammatory and immunomodulatory effects of probiotics in gut inflammation: a door to the body. Front Immunol. 2021;12:578386.
8. Hassan A, Sada KK, Ketheeswaran S, Dubey AK, Bhat MS. Role of zinc in mucosal health and disease: a review of physiological, biochemical, and molecular processes. Cureus. 2020 May;12(5).
9. Alpers DH, Young GP, Tran CD, Mortimer EK, Gopalsamy GL, Krebs NF, et al. Drug-development concepts as guides for optimizing clinical trials of supplemental zinc for populations at risk of deficiency or diarrhea. Nutr Rev. 2017;75(3):147–62.
10. Kostermans D, Simadibrata M, Hasan I. The Effect of Zinc Supplementation in Adult Patients with Acute Diarrhea. Indones J Gastroenterol Hepatol Dig Endosc. 2014;15(2):83–7.

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