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Appraisal of Unani basics in the Prevention & management of Dysentery (Pechis) -A Review Article

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I. Introduction, History and Background of Dysentery

Shigella named after K. Shiga, the Japanese bacteriologist who first discovered the dysentery bacillus. Soldiers have rarely won wars. They more often wipe up after the barrage of epidemics. And typhus, with its brothers and sisters' plague, cholera, typhoid, dysentery has decided more campaigns than Caesar, Hannibal, Napoleon, and all the inspector generals of history. The epidemics get the blame for defeat, the generals the credit for victory. It ought to be the other way around. It is appropriate to begin this brief history of Shigella by reminding our readers of the prominent role that bacillary dysentery, the disease caused by Shigella, played, and continues to play, in military operations and troopdeployments. Indeed, its importance is reflected in the significant number of seminal discoveries in the field of Shigella pathogenesis that came from scientists working at the Walter Reed Army Institute of Research and the continued efforts of the U.S. Army in pursuit of a vaccine against shigellosis.

Bacillary dysentery (shigellosis) as a disease has been recognized since biblical times. Hippocrates introduced the term dysentery (bowel trouble) to describe a malady characterized by the passage of bloody and mucus-containing stools accompanied by straining and tenesmus. Today's clinical definition of dysentery is not much different. The disease ranges from mild diarrhea to frank dysentery, which is marked by fever, abdominal pain and cramps, tenesmus, and the passage of bloody, mucoid stools. These symptoms are manifestations of the ability of Shigella to invade, and multiply within, epithelial cells of the large intestine, spread to adjacent cells, and ultimately kill the infectedcells. Although ulcerative damage to the intestinal epithelium leads to an intense inflammatory response, systemic spread of Shigella is rare. In an otherwise healthy individual, the disease is self-limiting and resolves even without antibiotic treatment within 2 weeks. Children (<5 years of age) and the elderly,

however, are at greatest risk of negative outcomes from these infections. Hemolytic uremic syndrome (HUS), for Shiga toxin-producing strains, is a possible sequela of infection. Asymptomatic carriageof Shigella has been reported, but the actual prevalence and length of carriage has not been established.

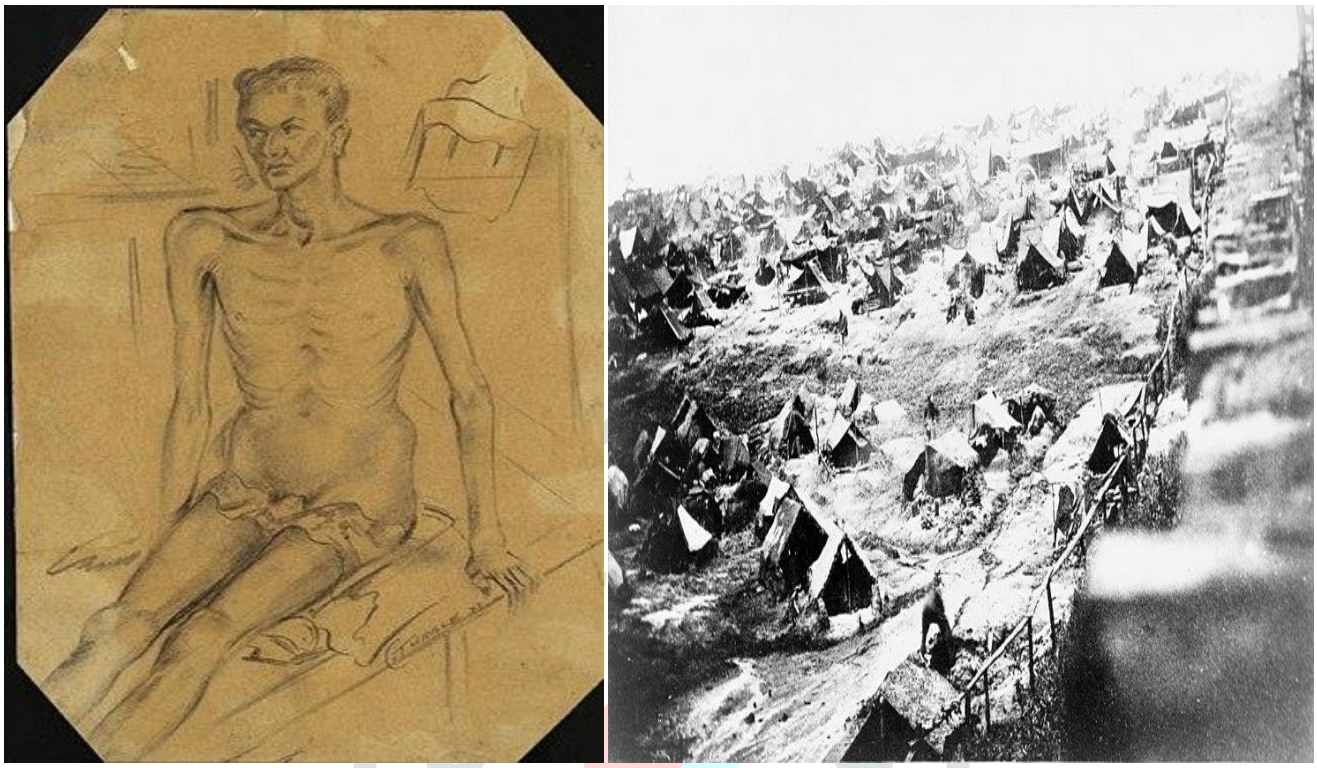

Fig. 1 & 2 Showing the Dysentery in Ancient Rome and Patient Quarantine

Transmission is by the fecal-oral route. There are many examples of transmission via fecally contaminated food and water, but flies, fingers, and fomites are also known means of transmission. One feature that makes Shigella such a potent and successful human pathogen is the low infectious dose needed to cause illness. This dose has been calculated to be as few as 100 organisms in volunteer challenge studies. While animal models exist for many bacterial pathogens that infect humans, studies on Shigella are limited to nonhuman primates, which are the only animals that faithfully reproduce dysentery when challenged by Shigella. Thus, although it is closely related to and has evolved from E. coli, Shigella is a highly host-adapted bacterial pathogen with no known animal or environmental reservoir. Dysentery is inflammation and infection of the intestines, which results in diarrhea containing blood or mucus. Other possible symptoms include stomach cramps, nausea, vomiting, and fever. Dysentery can occur as a result of a bacterial or parasitic infection. These infections typically spread as aresult of poor hygiene or sanitation. In the United States, most cases of dysentery are mild. However,

some people may experience severe symptoms and complications of the disease. This article describes what dysentery is, including its symptoms, causes, treatment options, and possible complications. We also provide information on diagnosis and prevention.

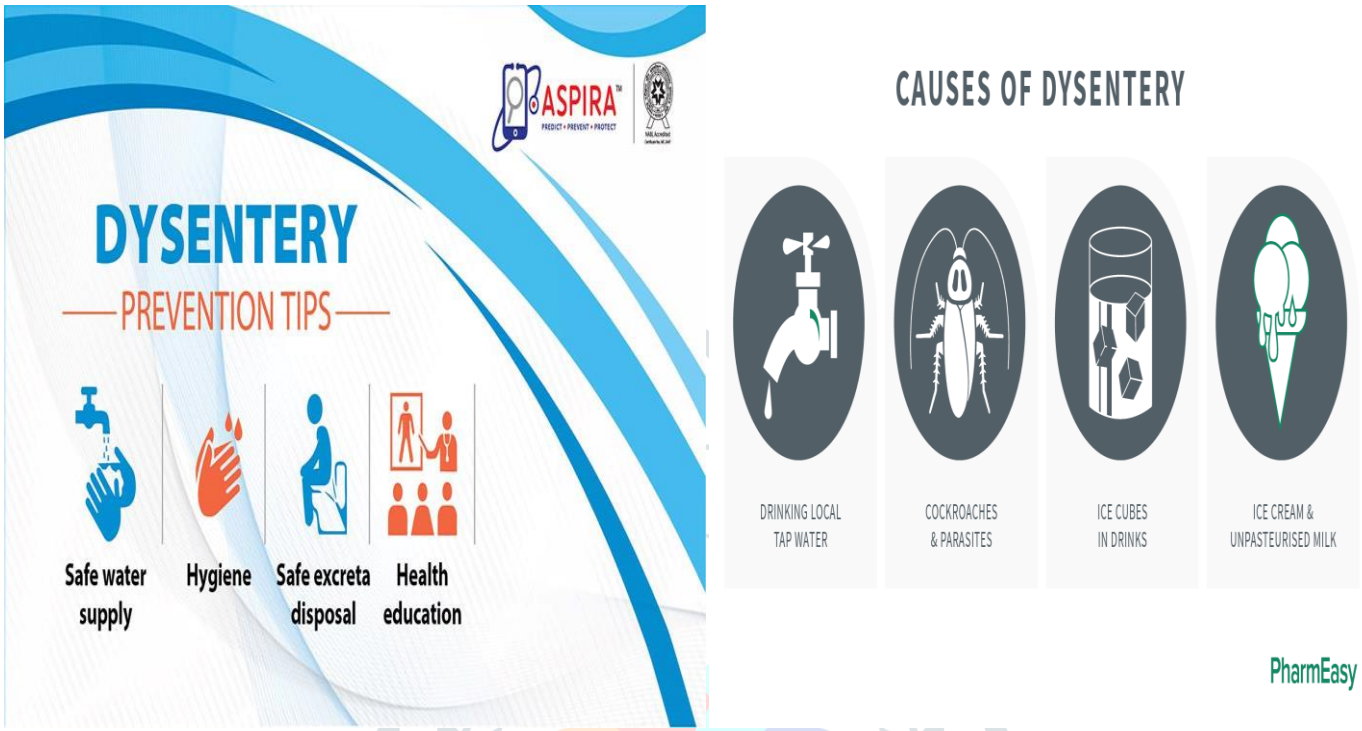

Fig. 3 & 4 Prevention and causes of Dysentery

Dysentery refers to bloody diarrhea, which can sometimes also contain mucus. It can occur dueto infectious germs, parasites, and irritation of the gut from chemicals. The most common type of infection dysentery is bacillary dysentery, or shigellosis. This type is due to infection withthe *Shigella* bacteria. Another main type of dysentery is amebic dysentery, or amebiasis. This type is dueto infection with a single-cell parasite called *Entamoeba.* In the U.S., most people who develop dysentery experience only mild symptoms that disappear within a few days. However, dysentery is a notifiable disease, meaning a person must inform the authorities if they have it. Doing so helps to prevent an outbreak of dysentery.

II. Types and Symptoms dysentery

Dysentery symptoms differ according to whether the infection is bacterial or parasitic.

A. Symptoms of bacillary dysentery

According to the Centers for Disease Control and Prevention (CDC) symptoms of bacillarydysentery typically begin around 1–2 days after infection and last around 7 days.

Symptoms may include:

- Dysentery, which can contain blood
- Feeling the need to pass stool even when the bowels are empty
- Abdominal pain
- Fever

Symptoms typically last around 5–7 days though some people may experience symptoms for 4 weeks or more. In some cases, it may take several months for a person's bowel habits to return to normal. Antibiotics can shorten the duration of illness by a couple of days and may prevent the infectionfrom spreading to others. However, people typically only receive antibiotics if their symptoms are severe.

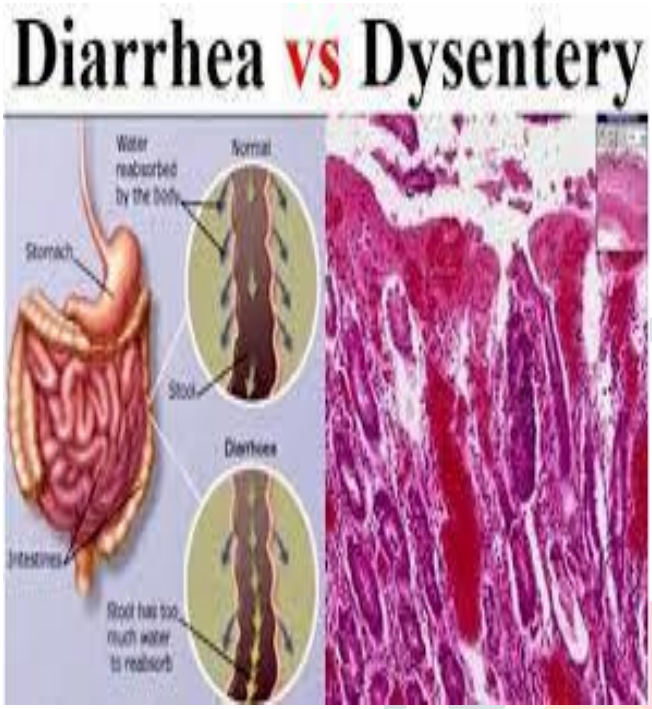

Fig. 5 & 6 Dysentery and Its Treatment

B. Symptoms of amebic dysentery

A person with amebic dysentery may experience the following symptoms:

- Abdominal pain and cramps
- Watery diarrhea, which can contain blood, mucus, or pus
- Intermittent constipation
- Fever and chills
- Fatigue

A doctor may prescribe medications to help eradicate the parasitic infection

III. Causes of Dysentery

There are two main types of dysentery, and each has different causes. We outline these below.

A. Bacillary dysentery, or shigellosis

The bacteria *Shigella* causes bacillary dysentery. A person may contract *Shigella* in the followingways:

- Not washing their hands thoroughly after visiting the bathroom
- Touching surfaces that the bacteria have contaminated, and then touching their mouth, nose, oreyes
- Eating food that the bacteria have contaminated
- Swallowing lake or river water when swimming
- Having sexual contact with someone who is recovering from bacillary dysentery

Shigella bacteria may remain in a person's stool for 1–2 weeks after they stop experiencing symptoms of the infection. People should continue to follow strict hygiene practices to prevent passing the infection on to others. *Shigella* outbreaks can occur among small social or community groups, including childcare facilities.

B. Amebic dysentery, or Amebiasis

The parasite *Entamoeba* causes amebic dysentery. Most cases of amebic dysentery occur when people ingest food or water contaminated with feces containing *Entamoeba* eggs. People most at risk of developing severe amebic dysentery include:

- Women who are pregnant or postpartum
- Newborns
- People who are taking corticosteroids
- People who are malnourished
- People who are living with cancer

IV. Conditions causing similar symptoms

Certain conditions can cause symptoms similar to those of dysentery. Examples include:

- ***Escherichia coli* infection:** A type of bacterial infection. Outbreaks are typically due to peopleconsuming raw or undercooked foods or foods contaminated with feces. Symptoms may include:

- Abdominal cramps
- Diarrhea, which may contain blood
- Vomiting
- Fever

B. Hookworm infection: A parasitic infection that can cause bloody diarrhea. Hookworm infections are more common in countries with warm, moist climates and poor sanitation. The main mode of transmission is walking barefoot on contaminated soil. People with a mild infection may not experience any symptoms. Itching and a localized rash are often the first signs of infection. Those with severe infection may experience the following:

- Abdominal pain
- Diarrhea
- Appetite loss
- Weight loss
- Anemia
- Fatigue

C. Antibiotic use: Antibiotic use may lead to overgrowth of the bacteria *Clostridiodes difficile*. This can result in inflammation of the large intestine, known as pseudomembranous colitis (PC). Symptoms of PC include:

- Abdominal cramping
- Diarrhea
- Fever

V. Treatment and Prevention

Antiparasitic medications such as metronidazole*, paromomycin and iodoquinol, are commonly used to treat dysentery caused by amoebiasis**.** Sometimes antibiotics like ciprofloxacin, ofloxacin, levofloxacin, or azithromycin are used to treat the organisms causing bacillary dysentery. People who still have diarrhea symptoms after 2 days of treatment should consult with their doctor, as you may need to try something else. If you travel, you should carry a one- to three-day self-treatment antibiotic regimen such as ciprofloxacin and use it in the case of sudden moderate-to-severe diarrheal illness. Bismuth subsalicylate taken preventatively can also be helpful for some travellers. In addition, use the antidiarrheal medication loperamide to slow the bowel and prevent dehydration. It is important to use antidiarrheal medications only until you can seek medical attention or to help you return home following a vacation. If you have dysentery caused by bacteria or parasite, you will want your body to expel the"bug." Consult your doctor if your child under 2 years of age has dysentery.

Fig. 7 Effective Home Remedies for Dysentery

It is most important to replace the fluids lost from dysentery**.** In mild cases, soft drinks, juices, and bottled water will be enough. More severe diarrhea should be treated with solutions that contain electrolytes such as potassium, salt, and sucrose. For severe diarrhea, commercial oral rehydration solutions are usually needed. These solutions are available in packets for easy travel. People should tryto consume enough fluids so that clear-to-light yellow urine is produced every 3 to 4 hours. While affected with dysentery, it is better to stick to a bland diet (bananas, rice, soda crackers, applesauce, toast) and avoid milk products. Dysentery can be prevented to some extent by practicing careful personal hygiene.

People who travel to or live in areas with high rates of dysentery should follow the followingadvice:

- Do not eat any foods cooked in unhygienic circumstances, such as from street vendors.
- Only eat cooked foods that have been heated to a high temperature. Do not eat cooked foods thathave cooled.
- Do not eat raw vegetables. Avoid species of fruits without peels. Open fruits with peels yourself.
- Drink only commercially bottled or boiled water. Do not use ice unless it has been made frompurified water.
- Use only bottled or boiled water to wash and to cook food in, to wash hands, and to brush teeth.
- Consider cleaning hands with an alcohol-based hand sanitizer.
- Always use a condom for any sexual activity involving anal contact and wash carefully before andafter sexual activity.

Treatment of Dysentery

Laboratory tests will reveal whether dysentery is due to *Shigella* or *Entamoeba* infection or another cause. A doctor will use this information when deciding which treatment to prescribe. In general, a person with diarrhea or vomiting should drink plenty of fluids to prevent dehydration. People who experience severe dehydration may require intravenous fluid replacement.

A. Treatment for mild bacillary dysentery

As dysentery usually gets better on its own after 3–7 days, people do not usually need treatment. If the person has diarrhea, they should drink plenty of fluids to avoid dehydration. If the diarrhea is bloody,they should avoid taking anti-diarrheal medication. A doctor may prescribe antibiotics if diarrhea and other symptoms are severe.

B. Treatment for amebic dysentery

People who have amebic dysentery may receive medications to eliminate the parasitic infection. Medication may include a combination of metronidazole and tinidazole. In rare cases, people can develop complications of amebic dysentery, such as intestinal issues or liver abscesses. A person may require surgery to address these issues.

Fig. 8 Alcoholic and Species food and are Prohibited in Dysentery

VI. Diagnosis of Dysentery

A person who experiences severe symptoms of dysentery should see their doctor for a diagnosis and appropriate treatment. In order to diagnose dysentery, a doctor may:

- Ask about the person's symptoms and when they started
- Ask if the person has recently traveled abroad
- Carry out a physical examination

If a person has recently returned from abroad, they may have to provide one or more stool samples.If they have suspected amebic dysentery and their stool samples test negative for the parasite, they may need to undergo a colonoscopy to examine the mucosal surface of the intestines. A person who has a suspected liver abscess may require aspiration of their liver fluid to help diagnose the abscess. If a person's symptoms continue, their doctor may recommend diagnostic imaging of the intestines, such as an ultrasound scan or an endoscopy.

VII. Complications of Dysentery

Dysentery can cause medical complications. These are more common among people with compromised immune systems. Some potential complications of dysentery include:

- **Dehydration:** Frequent diarrhea and vomiting can lead to dehydration. In infants and young children, this can quickly become life-threatening.
- **Liver abscess:** Amebic dysentery can cause an abscess in the liver.
- **Post-infectious arthritis (PIA):** A person may develop PIA as a complicationof *Shigella* infection. Symptoms include joint pain, inflammation, and stiffness.
- **Hemolytic uremic syndrome:** A condition involving inflammation and damage to the small blood vessels within the kidneys. It is a rare complication of *Shigella* infection.

A person who suspects that they are developing complications from dysentery should seek medical attention as soon as possible.

VIII. Prevention of Dysentery

Dysentery outbreaks usually occur as a result of poor hygiene or sanitation. To reduce the risk of infection, people should wash their hands regularly with soap and water, especially after using the bathroom and before preparing food. The risk of contracting dysentery is higher for people traveling to countries with warm, moist climates and poor sanitation. When traveling to such places, a person should:

- Only drink reliably sourced water, such as bottled water
- Ensure that bottled water has an unbroken seal before drinking
- Avoid ice cubes, as the water may be from a contaminated source
- Use only bottled or purified water to clean the teeth
- Cook food thoroughly before eating

IX. Household remedies of Dysentery

Dysentery can be highly uncomfortable, but most people can effectively treat it with rest and home remedies. Dysentery is a digestive problem that causes loose, watery bowel movements. It can be uncomfortable for a few hours or days, after which the symptoms should improve. In some instances, they last longer. While Dysentery often goes away on its own, several home remedies can ease symptoms and speed up recovery.

1.Rehydrating

Dysentery causes a deficit of fluids, making it vital to rehydrate. Hydrating the body is essentialto recovering from Dysentery. Dysentery causes a deficit of fluids, including water. This causes the body to lose electrolytes such as sodium and chloride. To support recovery, it is vital to restore fluids. Otherwise, a person may become dehydrated. Dehydration can be dangerous in children and older adults, so it is crucial to encourage them to drink water if they are experiencing diarrhea.

Drinking water is the first step to rehydrating. A person can also to create an oral rehydration solution bymixing 1 liter of water with half a teaspoon of salt and 6 teaspoons of sugar. Consuming sugar and salt with water helps the intestines to absorb fluids more efficiently. Avoid drinking anything that will further irritate the digestive tract, such as:

- Caffeinated drinks
- Alcohol
- Carbonated beverages
- Very hot drinks

2.Eating a recovery diet

A diet of small, frequent meals can be better than eating three larger meals a day when recoveringfrom Dysentery. A good diet for someone with diarrhea may involve:

- Foods rich in pectin, such as fruit
- Foods high in potassium, such as potatoes and sweet potatoes
- Foods with electrolytes, such as miso soup and sports drinks
- Cooked, soft vegetables

Some people find that having a liquid diet for the first 24 hours of diarrhea helps settle the digestive system. This may include salty broths, bland soups, and drinks. Adopting this diet for the first 24 hours may prevent the bowels from working too hard. Another option for people with dysentery is the BRAT diet. This consists of:

- Bananas
- Rice
- Apple sauce
- Toast

This diet combines bland foods that are low in fiber and high in starch, which may help produce more solid bowel movements. It also contains helpful nutrients, such as potassium and pectin. It is essential to note that the BRAT diet is highly restrictive and does not provide balanced nutrition. People should only follow this diet until they are feeling better and not any longer than 2 days.

3.Avoiding certain foods

A person with diarrhea should avoid eating greasy foods. It can help to avoid foods that could irritateor put pressure on the gastrointestinal tract, such as:

- High-fat foods
- Greasy foods
- Spicy foods
- Foods containing artificial sweeteners
- Foods with high levels of fructose

Some doctors recommend avoiding dairy products, as they may worsen diarrhea in some people. While general evidence for this claim is limited, people with lactose intolerance should avoid these products.

4.Taking probiotics

Probiotics are microorganisms that can benefit the digestive system. They can support theworkings of the gut and help fight off infection. Probiotics are live bacteria and yeasts in some yogurts and other fermented foods. People can also buy probiotic supplements in health stores or online. In 2010, researchers conducted a large systematic review of 63 studies on probiotics, with over 8,000 participants. They found that probiotics significantly shortened the duration of recovery from diarrhea. They also found probiotics to be safe, without any major side effects. The United States Food and Drug Administration (FDA) do not regulate probiotic supplements, so be sure to purchase them from a reputable source and ask a doctor or pharmacist if in doubt.

5.Trying medicines

Over-the-counter drugs, such as Imodium, can help reduce symptoms and speed up recoverytime. Several over-the-counter medications are available for treating diarrhea. Antimotility drugs canhelp reduce symptoms and speed up recovery time. A common example of this type of drug isloperamide (Imodium). However, these medications are not always appropriate. People with bloodybowel movements or a fever should refrain from taking antimotility drugs and speak to a doctor instead. **When to see a doctor**

In most cases, it is possible to treat diarrhea at home without consulting a doctor. However, if diarrhea lasts for more than 2 days, seek medical advice to avoid complications. Other reasons to see a doctor for diarrhea include:

- Blood or pus in bowel movements
- A fever
- Signs of dehydration, such as extreme thirst and dry mouth
- Chronic dysentery
- Dysentery during sleep
- Significant weight loss
- Severe abdominal pain

People at risk of complications, such as young children and older adults, should also see a doctor fortreatment if diarrhea does not improve with time and home remedies.

Summary

Dysentery is infection and inflammation of the intestines, which causes dysentery that, may contain blood or mucus. Other possible symptoms include abdominal pain, nausea and vomiting, and fever. Dysentery can occur as a result of bacterial or parasitic infections. Dysentery outbreaks are more common in countries with hot, moist climates and poor sanitation. A person can help prevent dysentery by taking appropriate precautions when traveling to high-risk areas and practicing good hygiene. In the U.S., most cases of dysentery are mild and do not require treatment. However, people who experience severe symptoms should see their doctor for a diagnosis and appropriate treatment. Doing so reduces therisk of possible complications.

Conclusions

It is critically important for anti- dysentery agents to be readily available and attainable in rural communities of the developing world, in order to address the high morbidity and mortality among children, and for families to be educated on standard methods of application. Indigenous herbal medicines used in the treatment of dysentery in worldwide rural communities are unlikely to be replacedsoon by modern medicines. However, scarcity of some plant species has resulted in the use of herbal drugs with suboptimal anti- dysentery activity. There is a need for sustainability of endangered species, standardization of methods of preparation and dosage, quality control of medicinal products and scientific validation of medicinal plants used in the treatment of dysentery in these communities. Traditional medicines have been a great source of health since pre-colonial times, and form the basis of many pharmaceutical products in the developed world. Therefore, it becomes imperative for local governments to incorporate these into the national health policy, and to make sure that certain standards are met and harmonised including the training and re-training of indigenous health practitioners. This would facilitate their professionalism, improve collaboration with other health care workers, instilconfidence amongst its users who make up 80% of the population, improve quality and render the products more acceptable nationally and internationally. It could also be a good attempt to accommodate affordable local medicines and technologies in the prevention and/or treatment of dysentery and otherdiseases.

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