



Dynamical Evaluation of *Vibrio Cholerae* Antibiotic Toxins

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ABOUT THE STUDY

Cholera is a bacterial disease that is usually transmitted through contaminated water. Cholera causes severe diarrhea and dehydration. If left untreated, cholera can be fatal within a few hours. Cholera is easy to handle. Death from severe dehydration can be prevented with a simple and inexpensive hydration solution. It is an acute diarrheal disease caused by an infection of the intestines with *Vibrio Cholerae*. Swallowing food or water contaminated with *Vibrio Cholerae* can lead to illness. Infections are often mild or asymptomatic, but can be severe and life-threatening. Approximately 1 in 10 cholera patients experience severe symptoms in the early stages, including, severe watery diarrhea, sometimes called "rice water stool", vomiting, thirst, leg cramps, restlessness and irritability.

If left untreated, 25%-50% of severe cholera cases can be fatal. Most people infected with *Vibrio Cholerae* have mild diarrhea or have no symptoms at all. Only a small percentage of people infected with *Vibrio Cholerae*. Cholera patients should be evaluated and treated promptly. With proper treatment, even seriously ill patients can be saved. Most people exposed to *Vibrio Cholerae* do not get sick and are unaware that they are infected. However, they allow *Vibrio Cholerae* in the feces to pass through for 7 to 14 days, which can infect others through contaminated water. Most cases of cholera that cause symptoms cause mild or moderate diarrhea, which is often difficult to distinguish from diarrhea caused by other problems. Others usually develop more serious signs and symptoms of cholera within a few days of infection. Symptoms of cholera infection include:

Diarrhea

Cholera-related diarrhea can occur suddenly, which can quickly lead to dangerous water loss. It can be up to 1 quart (about 1 liter) per hour. Cholera-induced diarrhea often has a pale milky appearance, similar to water washed with rice.

Nausea and vomiting

Vomiting occurs especially in the early stages of cholera and can last for hours.

Dehydration

Dehydration can develop within hours of the onset of cholera symptoms and can range from mild to severe. A loss of 10% or more of body weight indicates severe dehydration. Signs and symptoms of cholera dehydration include hypersensitivity, malaise, spunkiness, dry mouth, extreme thirst, slow recovery when pinched by wrinkles, dry, wrinkled skin, most or no urination. There are no, low blood pressure, irregular heartbeats.

A bacterium called *Vibrio Cholerae* causes cholera infection. The fatal effect of this disease is the result of toxins produced by bacteria in the small intestine. Toxins cause the body to secrete excessive amounts of water, causing diarrhea and the rapid loss of water and salt (electrolytes). *Vibrio Cholerae* does not cause illness to everyone exposed to them, but it still sheds bacteria from feces that can contaminate food and water supplies. Contaminated water supply is a major cause of cholera infection. Bacterial cholera is mainly formed in the following places:

Surface or well water

Contaminated public wells are a common cause of large outbreaks of cholera. People living in cramped conditions without proper hygiene are especially at risk.

Seafood

Eating raw or undercooked seafood from certain locations, especially crustaceans can expose you to *Vibrio Cholerae*. Recent cases of cholera in the United States date back to seafood from the Gulf of Mexico.

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Raw fruits and vegetables

Raw unpeeled fruits and vegetables are a common cause of cholera infection in areas prone to cholera. In developing countries, irrigation water, including uncompensated fertilizers and raw sewage, can contaminate crops.

Cereals

In areas where cholera is endemic, grains such as rice and millet

that are contaminated after cooking rice and left at room temperature for several hours can cause *Vibrio Cholerae*. Cholera can quickly become fatal. In the most severe cases, the rapid loss of large amounts of water and electrolytes can be fatal within hours. In less extreme situations, untreated individuals can die of dehydration and shock hours to days after the onset of cholera symptoms. Although shock and severe dehydration are the worst complications of cholera.