

State of the Globe: Revisiting Cholera – The Larger Ongoing Pandemic

The current issue of the *Journal of Global Infectious Diseases* presents an interesting article relating cholera cases to the gold-mining areas in northern Sudan. These areas have poor sanitation and water facilities compared to the rest of the nearby regions. This article reminds us of challenges ahead in our fight against the cholera and the global roadmap to 2030.^[1]

While the whole world is keeping a close attention toward the 2019 SARS-CoV-2 pandemic and resulting disruptions, it is prudent to revisit the larger ongoing pandemic caused by cholera. The world is currently in the 7th cholera pandemic that started in 1961 after the emergence of El Tor biotype of *Vibrio cholerae* O1 replacing the classical biotype that was responsible for the first 6 pandemics between 1817 and 1923.^[2] Despite all the developments in the medical science and technology, cholera continues to be a significant health problem in the endemic areas across the globe. The estimated annual incidence of cholera cases was 1.3–4.0 million cases resulting in 21,000–143,000 deaths worldwide in 2015.^[3] The wealthier nations have not seen many outbreaks of cholera in recent years, but it remains endemic in most of Africa and Asia.^[3]

Haiti, a North American nation, recorded one of the worst cholera outbreaks in recent times after the earthquake of 2010.^[4] Nearly 800,000 Haitians have been infected and 9000 have died of cholera.^[4] Haiti had not had any outbreak in the past before the earthquake hit this nation resulting in disruption of the infrastructure and water supplies. It forced a large number of people to seek refuge in camps with poor sanitation and water supply conditions. The earthquake provided perfect substrate for cholera, but it still needed the seeding of the Haitian river water sources which was unintentionally done by the troupes from Nepal that came for humanitarian aid to Haiti and ultimately led to the massive cholera outbreak.^[4] The source of this outbreak in Haiti remained mystery for some time, but thanks to the modern science tools including genetic mapping, it was confirmed that the troupes from Nepal had trained in a cholera endemic area in Nepal before moving to Haiti and some of the members carried the bacteria with them and the poor sanitation conditions in which the troupes were working led to the seeding of the water sources in Haiti.^[4]

Prolonged civil war in Yemen since 2015 has provided another potent substrate for cholera where 21 million people need humanitarian assistance.^[5] The United Nations has called it one of the worst humanitarian crises of today's world where cholera began in 2016 and more than 1 million cases and 2373 deaths had already been recorded till 2018.^[5]

These examples of cholera outbreaks are in addition to the yearly burden of 1.3–4 million cases in the countries where cholera is endemic.^[3] The disease is intimately linked with poverty, poor sanitation, and access to safe drinking water. Poorer nations in Africa and Asia are doing their best in dealing with the outbreaks with the help of the world health organization.^[6]

Just like any other infection, cholera does not produce severe symptoms in all those who get this infection. Most of those infected will have no or mild symptoms and can be easily treated with oral rehydration solution (ORS) alone.^[6] This is reassuring, but at the same time, this phenomenon is also responsible for easy spread of cholera from one individual to the other. Similar transmission was seen across the continent in case of Haiti outbreak where mildly symptomatic or asymptomatic Nepal troupes carried cholera organisms and seeded the river waters in a North American nation resulting in one of the worst outbreaks after 2000.^[4]

The severe cases need rapid treatment with intravenous fluids and antibiotics, in the absence of which a person can die within hours.^[7] Another issue with cholera is that the governments and authorities are very cautious in reporting cholera to the WHO because they fear that this may have impact on tourism and trade and tend to suppress the numbers.^[7] On the positive side, we have oral cholera vaccines available to curb the outbreaks at the community level and this has helped in taking care of many recent outbreaks across the world.^[7] The WHO is working with the local governments in cholera endemic areas toward improvement of water and sanitation situation in conjunction with oral cholera vaccines to control the recurrent outbreaks.^[6]

A global strategy on cholera control, ending cholera, has been formulated by the WHO in the global roadmap to 2030, with a target to reduce cholera deaths by 90%, and launched in 2017.^[6] With the availability of oral cholera vaccines, improving water and sanitation awareness among people, availability of ORS in distant places, improved communication services, and involvement of governments and local communities across the cholera endemic countries, the strategy on cholera control seems quite possible.

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