

Human Noroviruses and Sporadic Gastroenteritis

[Announcer] This podcast is presented by the Centers for Disease Control and Prevention. CDC — safer, healthier people.

[Dan Rutz] Hello, I'm Dan Rutz speaking today with Dr. Manish Patel, a medical officer with the Division of Viral Diseases here at CDC. We're here to talk about an article in the August 2008 issue of Emerging Infectious Diseases on noroviruses. Manish, tell us a little bit about noroviruses?

[Manish Patel] Sure, Dan. Noroviruses are a group of viruses that cause vomiting and diarrhea or gastroenteritis in people. The symptoms of norovirus illness usually include nausea, vomiting, diarrhea, and even some stomach cramping. Sometimes people also have fevers, chills, headaches, myalgias, or muscle aches, and a general sense of tiredness. The illness often begins suddenly, and the infected person may feel very sick. In most people, the illness is self-limiting with symptoms lasting for about 1 to 2 days. In general, children experience more vomiting than adults. Noroviruses are often associated with large outbreaks, but noroviruses also cause sporadic disease or gastroenteritis cases presenting to health care facilities year-round that are not necessarily associated with any particular outbreak.

[Dan Rutz] Tell me why we should be concerned about norovirus?

[Manish Patel] Well, despite improvements in safety of food, water, sanitation, and hygiene, diarrhea remains a common illness worldwide. It accounts for approximately 1.8 million annual deaths in children less than 5 years old worldwide. And noroviruses are also the leading cause of outbreaks of gastroenteritis in all age groups, causing about 50 percent of all outbreaks of gastroenteritis worldwide. In addition, norovirus is often misperceived as a mild illness or a nuisance bug, which is true to a certain extent, but what we often forget is that norovirus infection can also cause severe dehydration, electrolyte disturbances. These things can lead to visits to the clinics, emergency rooms, and even hospital stays. The young and the elderly—those often, those with weakened immune systems or other diseases, such as diabetes, heart disease—those are the ones who may be more impacted by dehydration and electrolyte imbalances. While timely rehydration with intravenous fluids would typically prevent most complications, in developing countries with limited access to health care, severe norovirus infection in these settings could potentially lead to death.

[Dan Rutz] Can you tell us a bit about your study please?

[Manish Patel] Yeah sure. We searched MEDLINE, EMBASE, and Google Scholar to identify studies published in English from January 1990 through February 2008. We reviewed all abstracts to identify articles that assessed the prevalence of norovirus among sporadic cases of diarrhea that lead to clinic and emergency department visits, as well as hospitalizations. Overall, we reviewed 235 studies and identified 31 original studies that met our inclusion criteria.

[Dan Rutz] And what did you come up with?

[Manish Patel] Well, we found that noroviruses accounted for approximately 12 percent of severe gastroenteritis cases—that is, cases that come to the hospital and the emergency department—among children less than 5 years old. And 12 percent of mild and moderate diarrhea cases—or cases that come to outpatient clinics—among all age groups. Our study indicates that norovirus is not only a disease associated with outbreaks, but that it's also associated with sporadic disease.

[Dan Rutz] So what's new here? Why is your study important?

[Manish Patel] Norovirus is well known cause of epidemic gastroenteritis. But there was a gap in studies about sporadic illness caused by norovirus. This gap is largely because of our limited ability to test for the norovirus in the past. However, because of improvements in diagnostic technology, we are now able to test and better detect norovirus, and more studies are now emerging that have applied these recently available diagnostics. So why would it be important to understand if norovirus also causes sporadic illness? Well, in outbreaks, typically, identification of a point-source of infection, such as contaminated food, water, or an infected person, such as a food handler, it's important to identify a point-source to control the outbreak and prevent others from getting ill. However, the studies in our review indicate that norovirus is also prevalent or common outside of outbreak settings and is a relatively common cause of children hospitalized with diarrhea. Norovirus is a highly infectious virus. That is, it only takes a few viral particles to make you sick and that we do not fully understand how it might get transmitted from person to person. The magnitude of the episodes of illness, particularly among children, suggests that we may have to rethink prevention strategies and consider development of targeted interventions, such as vaccines. Documenting the magnitude of illness and identifying those at the greatest risk for infection, severe infection particularly, such as the young and the elderly, that's important for developing vaccines and other interventions.

[Dan Rutz] Manish, what can people do to protect themselves, their families, and communities from getting norovirus?

[Manish Patel] Yeah, norovirus is highly infectious. Nothing can really replace frequent, vigorous hand-washing as a way to protect oneself from norovirus. If soap and water aren't available, alcohol-based hand gels can be used. Hand-washing is especially important after toilet visits, changing diapers, and before eating or preparing food. Persons who are infected with norovirus should not prepare food while they have symptoms and for 3 days after they recover from their illness. Food that may have been contaminated by an ill person should be disposed of properly. Thoroughly cleaning and disinfecting contaminated surfaces immediately after an episode of illness by using a bleach-based household cleaner is also important.

[Dan Rutz] What about vaccines?

[Manish Patel] No vaccines are available at this time but early studies are underway to look into developing these vaccines.

[Dan Rutz] So in the meantime hygiene seems to be our most important weapon.

[Manish Patel] That's absolutely correct, Dan.

[Dan Rutz] Our discussion with Dr. Manish Patel, prompted by an article in the August 2008 issue of Emerging Infectious Diseases. We thank you for this.

These articles, and others on emerging bacterial and viral diseases, can be read online at www.cdc.gov/eid. Again, that's www.cdc.gov/eid. And you can submit your comments on this interview to eideditor@cdc.gov. That's eideditor—one word—@cdc.gov. For Emerging Infectious Diseases, I'm Dan Rutz.

[Announcer] For the most accurate health information, visit www.cdc.gov or call 1-800-CDC-INFO, 24/7.