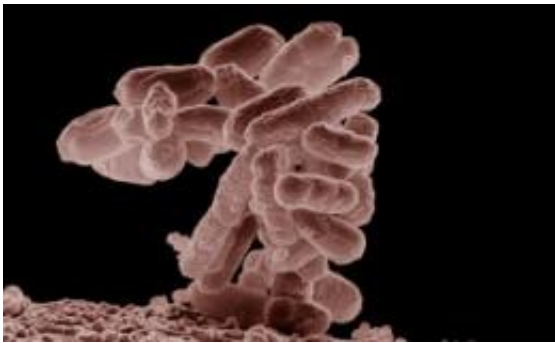


Novel use of drug saves children from deadly E. coli bacteria disease

December 20 2011



E.Coli bacteria

A physician and researcher at the Sainte Justine University Hospital Center (Sainte-Justine UHC), a University of Montreal affiliate, saved the life of a child and, by doing so, became the first to find a new use for a drug in the fight against deadly E. coli bacteria. In fact, after a little girl was admitted to the Sainte Justine UHC to treat severe complications, her physician, running out of options, thought about using the drug eculizumab, which is usually prescribed for another disorder with similar symptoms. Her intuition paid off and the little girl survived. The dramatic improvement experienced by the young patient and two others is explained in an article published last summer in the *New England Journal of Medicine*.

“At the time, there was no recognized treatment to cure the hemolytic

and uremic syndrome, a severe complications associated with E. coli infections,” says Dr. Anne-Laure Lapeyraque, a nephrologist in the Department of Pediatrics at the Sainte Justine UHC as well as a professor at the University of Montreal. “Successful use of this medication in these children has opened our eyes to a promising new treatment.”

Dr. Anne-Laure Lapeyraque and her international colleagues relate how eculizumab was used to treat three 3-year-olds with E. coli-related neurological complications. Within a few days to weeks, their blood counts returned to normal and their kidneys recovered. Eculizumab, a drug known as a monoclonal antibody, acts by blocking a substance in the immune system known as complement protein C5.

Once this new drug application had been discovered, intravenous eculizumab therapy was used to save the lives of a large number of people. “Our report was published during the massive E. coli outbreak in May and June in Germany, which allowed us to break the news and alert physicians,” explains Dr. Lapeyraque. During the outbreak, about 4,000 people in Europe fell ill by eating contaminated sprouts.

E. coli infection with a Shiga toxin-producing strain (“hamburger disease”) has been the subject of several recalls of contaminated beef in Canada and the United States over the past few years. E. coli can be found in undercooked ground beef, unpasteurized (raw) dairy products and contaminated fruits and vegetables, particularly alfalfa sprouts. Symptoms include cramps and vomiting, with or without bloody diarrhea, and can lead to kidney failure and be life threatening. This is why it is important to cook hamburger meat thoroughly, wash fruits and vegetables, avoid unpasteurized dairy products, especially for children, and wash one's hands after handling raw meat. According to Dr. Lapeyraque, these precautions have greatly reduced the incidence of E. coli infection in Quebec.

The investigators on this international clinical team are very excited about their discovery. For one thing, it helps explain how and why hamburger disease can develop with such devastating consequences. “Further research studies are needed to determine which patients will benefit from it the most,” adds Dr. Lapeyraque. In any event, “eculizumab” is now a hot buzzword at kidney disease meetings around the world.

More information: “Eculizumab in severe Shiga-toxin-associated HUS” [was published](#) in the *New England Journal of Medicine* online on May 25 and in print in the June 30, 2011 issue. The authors are Anne-Laure Lapeyraque, Michal Malina, Véronique Fremeaux-Bacchi, Tobias Boppel, Michael Kirschfink, Mehdi Oualha, François Proulx, Marie-José Clermont, Françoise Le Deist, Patrick Niaudet, and Franz Schaefer.

Provided by University of Montreal

Citation: Novel use of drug saves children from deadly E. coli bacteria disease (2011, December 20) retrieved 2 May 2024 from <https://medicalxpress.com/news/2011-12-drug-children-deadly-coli-bacteria.html>

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