

Hemolytic Uremic Syndrome

What is hemolytic uremic syndrome?

Hemolytic uremic syndrome (HUS) is a disease primarily that affects children, although people of any age may be affected. Kidney failure is the most serious symptom of the disease; other symptoms are an abnormally small number of platelets in the blood (thrombocytopenia) and anemia. Toxins called shiga toxins, or shiga-like toxins, are responsible for these symptoms. Several kinds of bacteria produce shiga toxins, although *E. coli* O157:H7 is the most common cause of HUS in the U.S. Other species of *E. coli* can also produce shiga toxin, collectively they are called enterohemorrhagic *E. coli*, or EHEC. Other types of bacteria that occasionally produce shiga toxin include *Campylobacter*, *Shigella*, *Salmonella*, and *Yersinia*. When shiga toxin is produced by these bacteria, HUS can occur following the diarrheal illness that is normally caused by these organisms. Not all cases of HUS are caused by shiga toxin; while uncommon, a variety of viral and bacterial infections, as well as some cancers, can trigger HUS in predisposed persons.

Who gets post-diarrheal hemolytic uremic syndrome?

Anyone can become infected with shiga toxin producing bacteria and have a diarrheal illness, but young children and the elderly are more likely to develop HUS. Approximately eight percent of children who have *E. coli* O157:H7 gastroenteritis will develop HUS; the percentage following infection with other shiga producing bacteria is not well known. HUS usually occurs between the eighth and twelfth day following the onset of diarrhea, although it may occur a few days or several weeks after the diarrheal illness.

Where do shiga toxin producing bacteria come from?

Several different kinds of unrelated bacteria can make shiga toxin because bacteria have the ability to share pieces of DNA called plasmids. Plasmids contain genetic codes that allow bacteria to make different proteins such as shiga toxin. On rare occasions, an animal is infected with two different kinds of diarrhea-producing bacteria, one of which is shiga toxin producing. If the shiga toxin producer shares a plasmid containing the genetic code for shiga toxin, other bacteria can acquire the ability.

What are the symptoms and complications associated with HUS?

Symptoms of HUS include extreme irritability and fatigue, paleness of the skin, and a decrease in urine output. Children must be watched very carefully for signs of HUS following a diarrheal illness, especially if a test of the stool reveals the presence of EHEC. Most people with HUS require hospitalization, and approximately 50% will need dialysis.

What is the treatment for hemolytic uremic syndrome?

Most treatments are supportive in nature and aimed at easing the immediate symptoms and signs of this disease and at preventing further complications. Medical care is provided in the hospital for treatment for kidney failure, including dialysis, blood transfusions to return the blood to normal, high blood pressure medicine, and a special diet. Intravenous immunoglobulin G (IgG) may be given. It is not clear whether antibiotics can help treat the disease.