Hand, Foot, & Mouth Disease (HFMD)

Description of Hand, Foot, and Mouth Disease

Hand, foot, and mouth disease (HFMD) is a common viral illness of infants and children. The disease causes fever and blister-like eruptions in the mouth and/or a skin rash. HFMD is often confused with foot-and-mouth (also called hoof-and-mouth) disease, a disease of cattle, sheep, and swine; however, the two diseases are not related—they are caused by different viruses. Humans do not get the animal disease, and animals do not get the human disease.

Illness

- The disease usually begins with a fever, poor appetite, malaise (feeling vaguely unwell), and often with a sore throat.
- One or 2 days after fever onset, painful sores usually develop in the mouth. They begin as small red spots that blister and then often become ulcers. The sores are usually located on the tongue, gums, and inside of the cheeks.
- A non-itchy skin rash develops over 1–2 days. The rash has flat or raised red spots, sometimes with blisters. The rash is usually located on the palms of the hands and soles of the feet; it may also appear on the buttocks and/or genitalia.
- A person with HFMD may have only the rash or only the mouth sores.

Cause of Hand, Foot, and Mouth Disease

- HFMD is caused by viruses that belong to the enterovirus genus (group). This group of viruses includes polioviruses, coxsackieviruses, echoviruses, and enteroviruses.
- Coxsackievirus A16 is the most common cause of HFMD in the United States, but other coxsackieviruses have been associated with the illness.
- Enteroviruses, including enterovirus 71, have also been associated with HFMD and with outbreaks of the disease.

How Hand, Foot, and Mouth Disease Is Spread

- Infection is spread from person to person by direct contact with infectious virus. Infectious virus is found in the nose and throat secretions, saliva, blister fluid, and stool of infected persons. The virus is most often spread by persons with unwashed, virus-contaminated hands and by contact with virus-contaminated surfaces.
- Infected persons are most contagious during the first week of the illness.
- The viruses that cause HFMD can remain in the body for weeks after a patient's symptoms have gone away. This means that the infected person can still pass the infection to other people even though he/she appears well. Also, some persons who are infected and excreting the virus, including most adults, may have no symptoms.
- HFMD is not transmitted to or from pets or other animals.

Factors That Increase the Chance for Infection or Disease

- Everyone who has not already been infected with an enterovirus that causes HFMD is at risk of infection, but not everyone who is infected with an enterovirus becomes ill with HFMD.
- HFMD occurs mainly in children under 10 years old but can also occur in adults. Children are more likely to be at risk for infection and illness because they are less likely than adults to have antibodies to protect them. Such antibodies develop in the body during a person’s first exposure to the enteroviruses that cause HFMD.
- Infection results in immunity to (protection against) the specific virus that caused HFMD. A second case of HFMD may occur following infection with a different member of the enterovirus group.

Diagnosis of Hand, Foot, and Mouth Disease

- HFMD is one of many infections that result in mouth sores. However, health care providers can usually tell the difference between HFMD and other causes of mouth sores by considering the patient's age, the symptoms reported by the patient or parent, and the appearance of the rash and sores.
- Samples from the throat or stool may be sent to a laboratory to test for virus and to find out which enterovirus caused the illness. However, it can take 2–4 weeks to obtain test results, so health care providers usually do not order tests.

Treatment and Medical Management of Hand, Foot, and Mouth Disease

- There is no specific treatment for HFMD.
- Symptoms can be treated to provide relief from pain from mouth sores and from fever and aches:
    - Pain and fever can be treated with over-the-counter medications (caution: aspirin should not be given to children).
    - Mouthwashes or sprays that numb pain can be used to lessen mouth pain.
- Fluid intake should be enough to prevent dehydration (lack of body fluids). If moderate-to-severe dehydration develops, it can be treated medically by giving fluids through the veins.

Prevention of Hand, Foot, and Mouth Disease

- A specific preventive for HFMD is not available, but the risk of infection can be lowered by following good hygiene practices.
- Good hygiene practices that can lower the risk of infection include
    - Washing hands frequently and correctly (see Clean Hands Save Lives!) and especially after changing diapers and after using the toilet
    - Cleaning dirty surfaces and soiled items, including toys, first with soap and water and then disinfecting them by cleansing with a solution of chlorine bleach (made by adding 1 tablespoon of bleach to 4 cups of water)
    - Avoiding close contact (kissing, hugging, sharing eating utensils or cups, etc.) with persons with HFMD

Vaccination Recommendations

- No vaccine is available to protect against the enteroviruses that cause HFMD.

Complications of Hand, Foot, and Mouth Disease

- Complications from the virus infections that cause HFMD are not common, but if they do occur, medical care should be sought.
- Viral or "aseptic meningitis can rarely occur with HFMD. Viral meningitis causes fever, headache, stiff neck, or back pain. The condition is usually mild and clears without treatment; however, some patients may need to be hospitalized for a short time.
- Other more serious diseases, such as encephalitis (swelling of the brain) or a polio-like paralysis, result even more rarely. Encephalitis can be fatal.
- There have been reports of fingernail and toenail loss occurring mostly in children within 4 weeks of their having hand, foot, and mouth disease (HFMD). At this time, it is not known whether the reported nail loss is or is not a result of the infection. However, in the reports reviewed, the nail loss has been temporary and nail growth resumed without medical treatment.