Virginia Commonwealth University

UNIVERSITY STUDENT HEALTH SERVICES • Fact Sheet

MONONUCLEOSIS (MONO)

WHAT IS IT?

Mononucleosis (also known as "mono") is a common viral infection caused by the Epstein-Barr virus (EBV). EBV infects and reproduces in the salivary glands. The classic symptoms of mono are fever, sore throat, swollen lymph nodes, and extreme fatigue. Mono can occur any time of the year but is more common in the fall and early spring.

HOW COMMON IS IT?

Mono occurs worldwide. Most documented cases are in people ages 15 to 24. In the US, at least 1 in 4 teenagers and young adults with EBV develops mono. Children often have symptoms that are so mild that they are never diagnosed. It is estimated that 90-95% of adults have been infected with EBV.

HOW IS IT TRANSMITTED?

Mono is transmitted through <u>direct contact with infected saliva</u>, usually through activities involving intimate person-to-person contact, such as kissing. Sharing contaminated food or drinks, eating utensils, and cups may also spread the virus, which probably survives on an object at least as long as the object remains moist. An infected person who never develops symptoms can still pass the virus on to others.

Contrary to popular belief, mono is not a particularly contagious disease. If there is no direct contact with infected saliva, the risk of infection is very small. Therefore, <u>a person infected with mono does not</u> <u>generally need to be isolated</u>. Studies also show that household members or roommates of infected individuals do not appear to be at higher risk for developing mono.

FOR HOW LONG IS IT CONTAGIOUS?

It is not certain how long the infectious period lasts. A person with mono is infectious several days before symptoms begin and for at least a number of weeks afterwards. Studies show that EBV can be shed in the saliva for an average of 6 months after symptom onset. In some cases, viral shedding up to 18 months following recovery has been documented. This explains why only a small number of people with mono remember being exposed to mono.

WHAT ARE THE SYMPTOMS?

The time from mono exposure to symptom onset ranges from 4 to 6 weeks. The severity of symptoms varies and can be so mild that the person doesn't know that they are infected. Children and older adults tend not to develop the classic mono symptoms described below. Most symptoms resolve over a few weeks; however, some symptoms (such as fatigue) can last several months.

- Classic symptoms of mono include fever, sore throat, enlarged tonsils and swollen lymph nodes. These are often preceded by a gradual onset of flu-like symptoms, such as fatigue, headache, and loss of appetite.
 - <u>Fever</u> usually lasts for a few days and may continue on and off for a few weeks. Night sweats can also occur.
 - <u>Sore throat</u> is present in 85% of patients. White patches on the tonsils are often visible.
 - <u>Swollen lymph nodes, typically on both sides of the neck</u>, occur in almost all patients. Tender enlarged nodes can also be found in the armpits and/or groin. The swelling may take 2-3 weeks to resolve.
 - <u>Fatigue</u> can last for several weeks. About 10% of infected individuals experience persistent fatigue 6 months after symptom onset.
- Less common symptoms include:
 - A generalized rash. Historically, this rash is more likely to develop in someone taking amoxicillin during a mono infection. However, the rash can occur in the presence of other antibiotics or NO antibiotics at all.
 - Inflammation of the liver. Patients may experience pain in the right upper abdomen or, rarely, jaundice (yellowing of the eyes or skin). Most patients will have no symptoms, even if bloodwork indicates elevated liver tests.
 - Enlargement of the spleen, which occurs in about 50% of patients. Patients may report pain in the left upper abdomen and/or left shoulder.

HOW IS MONO DIAGNOSED?

Symptoms and exam findings play important roles in diagnosing mono. Blood tests are commonly used to confirm the diagnosis:

- A <u>monospot test</u> can be performed in the clinic to detect antibodies to EBV in the blood. The
 results are available within a few minutes. Because it takes time for the body to develop
 antibodies against infections, this test may be falsely negative during the first week of illness.
- <u>Specific testing for EBV antibodies</u> may be ordered if the monospot test is negative, but a mono infection is still suspected. The results of this blood test may take several days to return.
- A blood count may show an increase in lymphocytes, a type of white blood cell that fights infection.
- An elevation in liver function tests occurs in most patients but is usually self-limited.

HOW IS IT TREATED?

More than 90% of mono cases are uncomplicated and self-limited, for which no specific therapy is necessary.

- Because mono is caused by a virus, antibiotics will not help. (Antibiotics treat bacterial infections, such as strep throat.)
- Antiviral medications have not been shown to be effective against the Epstein-Barr virus (EBV).
- **Rest, hydration, and a well-balanced diet** are important components of treatment.
 - Getting good rest leads to a faster recovery. Returning to your usual activities too early can lead to a relapse of symptoms. However, complete bed rest is usually not necessary.
 - You may attend classes once you feel well enough to do so.

Pain control

- <u>Acetaminophen (Tylenol) or ibuprofen (Advil or Motrin)</u> can be used to control pain and/or fevers. Take ibuprofen with food to avoid stomach issues. Avoid acetaminophen if your liver tests are elevated. Always follow the package insert for directions on how to take these medications safely.
- Salt-water gargles (1/2 tsp of salt in 8 oz of warm water every 3-4 hours) or throat lozenges may be helpful.
- <u>Oral corticosteroid medications</u>, such as prednisone, are reserved for severely swollen tonsils that make swallowing or breathing difficult. Prednisone should be taken with food to avoid an upset stomach and dosed early in the day to avoid insomnia.

WHAT ARE POSSIBLE COMPLICATIONS?

Mono can cause inflammation of the spleen and/or liver, which is usually self-limited:

- Rupture of an enlarged spleen is a rare but potentially life-threatening complication which causes severe abdominal pain. The risk of rupture is highest during the first 3 weeks of symptoms and typically occurs around day 14. In over half of cases, splenic rupture occurs spontaneously.
 - Therefore, it is important to <u>avoid lifting</u>, <u>straining</u>, <u>contact sports</u>, <u>and vigorous physical activity</u> for <u>at least 4 weeks</u> after mono symptoms begin.
 - Training for non-contact sports may be gradually introduced 3 weeks after symptom onset.
 - Athletes should follow up with a medical provider prior to resuming full sports participation.
- Inflammation of the liver may also occur, usually without obvious symptoms.
 - If your liver tests are elevated, you will be asked to <u>avoid acetaminophen (Tylenol)</u> and to return to clinic for repeat liver tests.
 - It is important to <u>avoid drinking alcohol</u> while you are recovering from mono.

CAN I GET MONO AGAIN?

Although EBV remains in the body indefinitely following infection, the disease rarely recurs in people with normal immune systems. If you have had mono before and think you are experiencing symptoms again, seek medical evaluation. Many other conditions can mimic the symptoms of mono.

CONTACT YOUR HEALTHCARE PROVIDER IF YOU HAVE ANY OF THE FOLLOWING:

Difficulty swallowing.

- Severe abdominal pain.
- Difficulty breathing, especially when lying down.
- Prolonged fever.
 - Yellow coloring of the skin and/or eyes.

RECOMMENDED WEBSITES: www.cdc.gov, familydoctor.org, www.mayoclinic.org