



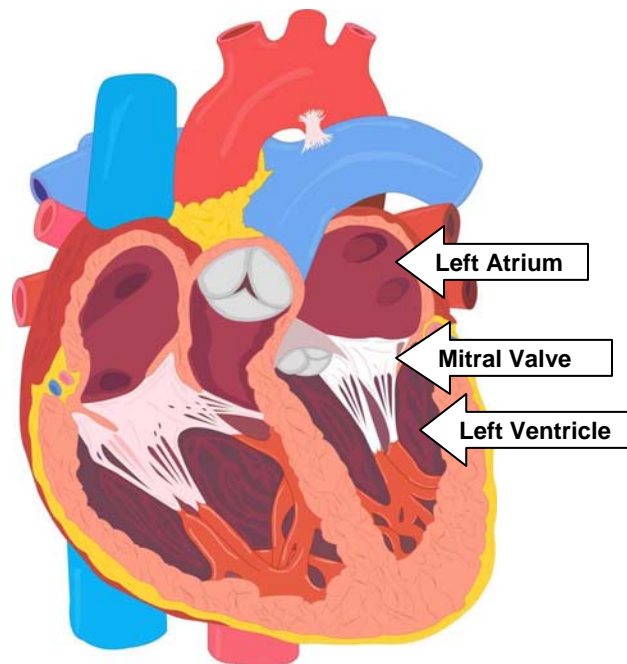
Fact Sheet

Mitral Regurgitation

Mitral regurgitation (MR) is the most common type of heart valve condition—approximately eight million people in the United States and Europe suffer from MR or a "leaky heart valve." MR occurs when the leaflets (two triangular-shaped flaps of tissue which come together to close the valve) of the mitral valve do not close properly, allowing blood to flow backwards (regurgitate) into the left atrium, thereby decreasing blood flow to the body.

The mitral valve is a one-way valve located between the heart's two left chambers: the left atrium, which is the chamber in the heart that collects blood from the lungs, and the left ventricle, which is the chamber in the heart that pumps blood to the rest of the body. The mitral valve opens and closes allowing blood to flow forward through the heart during a normal heartbeat.

When the mitral valve is not functioning properly, blood does not move through the heart or to the rest of the body as efficiently as with a healthy heart. To maintain an adequate forward flow of blood through the body and compensate for the MR, the left ventricle must pump harder. Some people may develop an enlarged left ventricle to accommodate the increase in the volume of blood the heart is pumping out to the body.



Mitral Regurgitation Signs & Symptoms

Signs and symptoms of MR depend on its severity and how quickly the condition develops and some MR patients may have no symptoms at all. The severity of MR is determined by the amount of blood being pushed back into the left atrium when it should be circulating through the left ventricle with each heart beat. MR severity is typically classified as mild (grade 1+), moderate (grade 2+), moderate to severe (grade 3+) or severe (grade 4+). For patients with significant MR, the heart's ability to function continues to deteriorate over time, and may lead to irregular heartbeat, heart failure, stroke, heart attack or death. MR symptoms may include:

- Heart murmur
- Shortness of breath
- Fatigue
- Lightheadedness
- Cough, especially at night or when lying down
- Heart palpitations — sensations of a rapid, fluttering heartbeat
- Swollen feet or ankles
- Excessive urination

Treatment Options

There are three main treatment options in the continuum of care for MR, including medical management, open-heart surgery and less invasive mitral valve repair techniques. The best MR treatment depends on a physician's analysis of the patient's severity of MR and overall health.

Medication can be prescribed to control and relieve the symptoms of MR. However, medication cannot correct a mitral regurgitation. Medications such as diuretics are available to relieve fluid accumulation in the lungs or legs, which can accompany MR. High blood pressure makes MR worse, so if a patient has high blood pressure, a doctor may prescribe medication to help lower it. Following a low-salt diet helps prevent fluid buildup and helps control blood pressure.

In some cases, a doctor can decide that the mitral valve needs to be surgically repaired or replaced. The surgeon can repair or replace the original valve with the goal of eliminating backward blood flow. Surgeons can also repair the valve by reconnecting valve leaflets or by removing excess valve tissue so that the leaflets can close tightly. Sometimes repairing the valve includes placing a ring around the valve. In valve replacement surgery, the damaged mitral valve is replaced by a mechanical or bioprosthetic valve.

Mitral valve repair or replacement requires open-heart surgery under general anesthesia. With open-heart surgery, a cut the length of the patient's breastbone is made and the heart is exposed and connected to a heart-lung machine which takes over the patient's breathing and blood circulation functions during the procedure. The surgeon then replaces or repairs the mitral valve. After the

operation, it is common for a patient to spend one or more days in an intensive care unit, where heart function and general recovery are closely monitored.

Currently, only a small proportion of patients undergo surgery to treat MR each year. The vast majority of patients remain untreated because they are either too sick or too old to endure the trauma of open heart surgery or are not considered sick enough to warrant invasive surgery. Without intervention, a patient's condition gradually deteriorates until they suffer heart failure and, ultimately, death.

Select patients may benefit from less invasive mitral valve repair techniques, which consist of a small catheter-based device being delivered to the heart through a blood vessel in the leg (femoral vein) similar to a coronary stent procedure. The heart continues beating normally during this catheterization procedure. Patients who have minimally invasive mitral valve repair usually have a shorter recovery time and leave the hospital sooner.

It is important that patients consult with their doctor to understand the severity of their MR and to determine which treatment option is right for them.

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