



Azathioprine (Imuran)

Azathioprine (*Imuran*) is a drug used to treat swelling and pain in arthritis. The most common diseases treated with Imuran are dermatomyositis, systemic lupus erythematosus and vasculitis. It belongs to a class of medications called disease-modifying antirheumatic drugs (DMARDs) or immunosuppressants. This class of medicines can decrease joint damage and disability.

Fast Facts

- Azathioprine is used to treat joint swelling in rheumatoid arthritis and complications of other conditions, including lupus, vasculitis or myositis.
- Blood counts of patients taking azathioprine should be carefully monitored to minimize their risk of infections while taking this drug.
- Patients taking azathioprine should notify their physician if they develop fevers or nausea and vomiting as these can be signs of a serious allergic reaction or infection.

Uses

Azathioprine is used to treat many inflammatory conditions, including [rheumatoid arthritis](#), [lupus](#), inflammatory muscle diseases (dermatomyositis and polymyositis), [vasculitis](#), multiple sclerosis, myasthenia gravis, autoimmune hepatitis and inflammatory bowel disease. It also is used to prevent rejection of transplanted organs.



How it works

Azathioprine is a prodrug (a precursor of the active drug) which is converted in the body to its active components 6-mercaptopurine and 6-thioguanine. Azathioprine works by reducing the function of the body's immune system response. Although the immune system is important for fighting infections, immune system cells sometimes mistakenly attack the body's own tissues. Azathioprine helps prevent this by interfering with deoxyribonucleic acid (also known as DNA) synthesis, which is needed for cells to grow and divide.

Dosing

Dosage of this medication depends on the disease being treated. The initial dose for rheumatoid arthritis is approximately 1 milligram/kilogram (mg/kg) of body weight, or approximately 50 to 100 mg given as a single dose or twice daily. This can be increased every 1-2 months, up to a maximum dose of 2.5 mg/kg of body weight, or approximately 75 to 150 mg given twice a day.

Time to effect

A benefit in arthritis or other conditions may appear as early as 6-8 weeks. It may take up to 12 weeks to notice a full effect.

Side effects

The most common side effects of azathioprine can involve the gastrointestinal tract (which includes the stomach, intestines, liver and pancreas) and the blood cells. Approximately 10-15 percent of patients may have nausea and vomiting after taking this medication, sometimes accompanied by abdominal pain or diarrhea. Taking the medication twice daily instead of all at once, or taking it after eating, may help avoid these problems. If vomiting occurs, you should contact your doctor, as this may be a sign of a serious reaction.

Less often, azathioprine may cause hepatitis (liver swelling or damage), pancreatitis (swelling or damage to the pancreas gland behind the stomach, which can cause abdominal pain) or an allergic reaction that may include a flu-like illness or a rash. Azathioprine also can lower the number of infection-fighting white blood cells.

Before or during treatment, your doctor may perform certain blood tests (such as thiopurine methyltransferase enzyme activity) which can help predict and monitor toxicity.

Long-term use of azathioprine in combination with other immune-suppressing medications in transplant patients has been associated with a slightly elevated risk of cancer. There may be a similar slight increased risk of lymphoma (a form of cancer) in patients taking this medication for inflammatory bowel disease. This risk appears to be increased when taken along with medications known as anti-TNF drugs (or TNF inhibitors) in the treatment of Crohn's disease or ulcerative colitis. It is not clear whether arthritis patients face a similar risk.

Points to remember

It is important to take azathioprine as directed and have regular blood tests. You should notify your doctor if you have these symptoms while taking this medication: fever, rash, easy bruising or bleeding, or signs of an infection. Be sure to talk with your doctor before receiving any vaccines or undergoing any surgeries while taking this medication. It may be important to receive certain vaccines before starting this medication, such as the Pneumovax (pneumonia vaccine), hepatitis B, tetanus booster, or the Zostavax (shingles vaccine) for some patients.

If you are pregnant or are considering having a child, discuss this with your doctor before starting this medication. The use of an effective form of birth control is important as long as you take this medication and for months after it is stopped. Breast-feeding should be avoided while taking azathioprine because the drug can enter breast milk.

Drug interactions

Be sure to tell your doctor about all of the medications you are taking, which may include over-the-counter drugs and natural remedies. Medications that may interfere with azathioprine and potentially cause serious problems include the [gout](#) medication allopurinol (*Aloprim, Zyloprim*); warfarin (*Coumadin*); some blood pressure medications, including some angiotensin-converting enzyme (ACE) inhibitors (*Accupril or Vasotec*); olsalazine (*Dipentum*); mesalamine (*Asacol, Pentasa*); and [sulfasalazine](#) (*Azulfidine*).

Information to discuss with your primary care physician and other specialists

Be sure to notify your other physicians that you are taking this drug. Women taking this medication should discuss appropriate forms of birth control with their primary care physicians or gynecologists. Live vaccines should be avoided while on this medication, and you should discuss updating your vaccinations prior to starting this medication. Because this medication can lower your ability to fight infection, it is important you discuss this with any treating physician, as this may lead to a different evaluation or treatment.

To find a rheumatologist

[View a listing of rheumatologists in your area](#)

Learn more information about [rheumatologists](#) and [rheumatology health professionals](#)

For more information

The American College of Rheumatology has compiled this list to give you a starting point for your own additional research. The ACR does not endorse or maintain these Web sites, and is not responsible for any information or claims provided on them. It is always best to talk with your rheumatologist for more information and before making any decisions about your care.

National Institutes of Health

www.nlm.nih.gov/medlineplus/druginfo/meds/a682167.html

Mayo Clinic

www.mayoclinic.com/health/drug-information/DR601561

Medscape Reference

<http://reference.medscape.com/drug/azasan-imuran-azathioprine-343191#91>

Updated March 2013

Written by Michael Cannon, MD, and reviewed by the American College of Rheumatology Communications and Marketing Committee.

This patient fact sheet is provided for general education only. Individuals should consult a qualified health care provider for professional medical advice, diagnosis and treatment of a medical or health condition.

© 2013 American College of Rheumatology