Digoxin (Lanoxin)

Digoxin (Lanoxin) is a cardiac glycoside and antiarrhythmic medication. It works by increasing inotropy and is indicated for heart failure and atrial fibrillation. The drug can lead to bradycardia and fatigue and is contraindicated in heart block. It should be noted that this drug should be cautioned in heart rates below 60 and hypokalemia. Digibind is the antidote.



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Mechanism of Action

Increases Inotropy
Up-arrow I-heart Flexing
Digoxin inhibits Na+/K+/ATPase pump. By inhibiting this pump, digoxin increases the force of ventricular contraction, which is known as inotropy. This drug also increases cardiac output, by increasing stroke volume per beat.

Indications

Heart Failure
Dead Heart
Because digoxin can increase the inotropy/contractility of the heart, it is sometimes used in patients who have heart failure who remain symptomatic despite adequate diuretic and ACE inhibitor treatment. However, it is no longer the first-line drug used in heart failure due to its toxic effects and the availability of other treatment options.

Atrial Fibrillation
Atria-heart Alarm-clock
Digoxin is used in people with atrial fibrillation by slowing down the conduction in the AV node, thereby reducing ventricular rate.

Side Effects

Bradycardia
Snail-heart
Digoxin increases vagal activity, thereby decreasing heart rate by slowing depolarization of pacemaker cells in the AV node.

Fatigue
Sleepy-guy
Fatigue is a common side effect of digoxin and may also include dizziness, headache, and malaise.

Contraindications

Heart Block
Caution-tape Heart with Block
Digoxin is contraindicated in patients with heart block, as well as, in pregnancy, acute myocardial infarction, and hypokalemia.

Nursing Considerations

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Heart Rate Below 60

Heart-timer Less-than 60

Before administering medication, take an apical pulse for 1 full minute noting rate and rhythm and quality. Withhold the medication and notify the health care provider if rate falls below 60.

Hypokalemia

Hippo-banana

Never give digoxin to a patient who is already hypokalemic, as this potentiates digoxin toxicity. Because digoxin normally competes with K+ ions for the same binding site on the Na+/K+/ATPase pump, hypokalemia can make toxicity present more quickly.

Monitor for Toxicity and Visual Changes

Toxic-green-ooze and Delta-eyes

Signs and symptoms of digoxin toxicity become more frequent with levels above 2 ng/ml, and may include anorexia, nausea, vomiting, diarrhea, confusion, and visual disturbances, such as blurry vision that often has a yellow hue. Levels are usually checked every 6 months along with other lab values.

Digibind

Digital-ox-bound by Cowboy

Digibind is an antidote for digoxin toxicity. It works by binding to digoxin and preventing it from working in the body.

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