Nitroglycerin

Nitroglycerin is a medication belonging to the group known as nitrates. These drugs are potent vasodilators by acting directly on vascular smooth muscles. Nitroglycerin can be administered transmucosal, sublingual, IV, or transdermal and has special considerations regarding different routes.



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Mechanism of Action

Decreases Preload
Down-arrow Preload Heart-pump
Nitroglycerin breaks down to form nitric oxide, a powerful vasodilator that at low doses has a preference for venous dilation. This results in decreased preload. At higher doses nitroglycerin also decreases afterload by vasodilating arteries.

Indications

Angina
Angel with Chest Pain-bolts
Primarily indicated for angina, nitroglycerin is also indicated for pulmonary edema associated with heart failure.

Up to 3 doses q 5 mins
3 Doses of Q-clock with (5) Hand
Patients who have their own prescription of nitroglycerin may take the medication as directed after an angina attack up to three doses 5 minutes apart. Angina that is not relieved by nitroglycerin is an emergency and the patient should be taken to the nearest emergency room, as unrelieved anginal pain may indicate a myocardial infarction.

Side Effects

Headache
Head-egg-lump
Headache often occurs due to vasodilation of the cerebral blood vessels which causes an increased pressure. The headache may be severe.

Hypotension
Hippo-BP
As a powerful vasodilator this medication often causes rapid onset of hypotension. Hypotension may manifest as weakness, syncope, and dizziness. The patient should always take the medication sitting down. Additionally, because of rapid vasodilation reflex tachycardia may develop in some patients.

Contraindications

Viagra (Sildenafil)
Caution-tape Hugh Hefner
Combining nitroglycerin with phosphodiesterase inhibitor mediations like sildenafil (Viagra) may cause an unsafe drop of blood pressure. This drop in blood pressure may be fatal. Education about the importance not to combine these medications is essential.

Nursing Considerations

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Assess Blood Pressure

Assessing Blood Pressure

Before administering each dose of nitroglycerin, the patient should be assessed for low blood pressure. As facility guidelines differ, it is not recommended to administer nitroglycerin with a systolic blood pressure below 100.

Protect From Light

Shield Protecting from the Sun

Because nitroglycerin is a volatile compound, it may be degraded when exposed to light. Educate the patient to keep the medicine in the light-protective container at all times. IV Nitroglyercin should be covered once administered. It should also not be removed from the container until ready to use. Also, the nurse should educate the patient about the importance of discarding the medication after the expiration date, as it may not be effective.

Use Glass Bottle and Special Tubing

Glass Bottle and Special Tubing

Nitroglycerin when given IV should be administered using a glass IV bottle and special tubing. Plastics in typical IV bags may interact with the medication and render it useless. Also remember to never remove IV Nitroglycerin from the cardboard container until it is ready to be used and shield infusions from light with something opaque.

Gloves for Applying Topically

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Nitroglycerin applied topically should never be handled without gloves, as it can absorb into the skin of the nurse.

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