Class

Vasodilator

Pharmacologic Properties

Nitroglycerin is an organic nitrate which causes systemic vasodilation by entering vascular smooth muscle, converting to nitric oxide, and activating cGMP. This dose-dependent dilation acts primarily on the venous system, although it also produces direct coronary artery vasodilation as well. The overall result is a decrease in venous return which decreases the workload on the heart and thus, decreases myocardial oxygen demand.

Indications

- Chest pain associated with angina pectoris or suspected acute MI Protocol 10, Protocol 11.
- Acute pulmonary edema with hypertension Protocol 8.

Contraindications

- Hypertension associated with acute stroke or severe brain injury
- Systolic BP < 90 mmHg
- Phosphodiesterase-5 inhibitor use within 24 hours - sildenafil (Viagra®), 48 hours - vardenafil (Levitra®) or tadalafil (Cialis®).
- Phosphodiesterase-5 inhibitor use secondary to Pulmonary Hypertension within 24 hours - sildenafil (Revatio®) or 48 hours - tadalafil (Adcirca®).

Precautions

- Use with caution in acute inferior wall MI or right ventricular infarct (ST elevation in V4R) - be prepared to administer up to 1000 mL NS bolus if hypotension develops
- Patients on chronic nitrate therapy may require larger doses of nitroglycerine during acute anginal episodes
- Alcohol will accentuate vasodilating and hypotensive effects

Side Effect/Adverse Reactions

- Headache, dizziness, flushing, nausea and vomiting. Hypotension, reflex tachycardia. Have the patient sit or lay down during administration to avoid postural hypotension.

Dosage and Administration

Adult

Adult Cardiac Event/CHF

- 0.4 mg lingual/sublingual.
  - May be repeated every 3 – 5 minutes if the systolic blood pressure remains above 90 mmHg (Maximum total dose of 1.2 mg or 3 doses).

Adult Pulmonary Edema/CHF

- 1" (one inch) of 2% Nitro-Bid topical ointment applied to the chest wall.
  - Ensure systolic B/P ≥ 100 mmHg.

Pediatric

- Not indicated for pediatric management.