

Classification

Nitrate Vasodilator

Prehospital Indications

Chest Pain – Suspected Cardiac
Chest Pain – STEMI
Pulmonary Edema / CHF

Other Common Indications

Rapid blood pressure lowering in hypertensive emergency

Adult Dose

Chest Pain – Suspected Cardiac / Chest Pain – STEMI

0.4 mg SL prn, repeat every 5 min prn x2, total 3 doses, hold if SBP < 100mmHg or patient has taken sexually enhancing medication within 48 hours

Pulmonary Edema / CHF

0.4mg SL, for SBP ≥ 100mmHg

0.8mg SL, for SBP ≥ 150mmHg

1.2mg SL, for SBP ≥ 200mmHg

Repeat every 3-5 min prn x2 for persistent dyspnea, assess blood pressure prior to each administration and determine subsequent dose base on SBP as listed above. Hold if SBP < 100mmHg

Pediatric Dose

Not recommended for pediatric administration

Mechanism of Action

Organic nitrate which causes systemic venous dilatation, decreasing preload. Cellular mechanism: nitrate enters vascular smooth muscle and is converted to nitric oxide leading to vasodilation. Relaxes smooth muscle via dose-dependent dilation of arterial and venous beds to reduce both preload and afterload, and myocardial oxygen demand. Also improves coronary collateral circulation. Lowers BP, increases heart rate and occasional paradoxical bradycardia.

Pharmacokinetics

Onset is 1-3 min SL or TM; duration is 20-30 min

Contraindications

Use of sexually enhancing/erectile dysfunction medications such as sildenafil, tadalafil or vardenafil within the past 48 hours

Hypotension with SBP < 100mmHg

Suspected cardiac tamponade

Interactions

Alcohol, opiates and antihypertensive agents may compound hypotensive effects. Patients taking sexually enhancing/erectile dysfunction medications are at risk for severe, prolonged hypotension leading to death.

Adverse Effects

Circulatory Collapse
Dizziness
Headache
Hypotension / Postural Hypotension
Syncope
Weakness

Prehospital Considerations

- Caution advised in suspected intracranial hemorrhage or stroke patients