Nitroglycerin dilates coronary arteries and decreases peripheral vascular resistance. Therefore, it can reduce the pain of angina in coronary artery disease and it can reduce the work of breathing in heart failure disease. By decreasing venous blood return to the heart, it will help reduce pulmonary congestion and improve cardiac contractility. But it also can cause hypotension and reduced cardiac output. Fortunately, SL use has a short half-life and IV use can be readily titrated to an appropriate blood pressure. Nitroglycerin also causes generalized smooth muscle relaxation which is the reason it may reduce the pain of esophageal spasm.

Indications and Administration

1. Chest pain due to possible angina or acute myocardial infarction.
   a. **Adult**
      i. SL - 0.3-0.4 mg tab or 1 spray under the tongue. May repeat every 3-5 min as needed while maintaining a systolic B/P of >100.
      ii. Usually three or four doses are effective. Consult medical control for more than 4 doses.
   b. **Pediatric -** not used.
2. Difficulty breathing due to pulmonary edema, HAPE, congestive heart failure.
   a. **Adult -** See above for SL doses.
   b. **Pediatric** – not used.
3. Malignant hypertension, defined as systolic BP > 250 mmHg and a diastolic BP >120 mmHg, causing encephalopathy, hemorrhage, or chest pain. Hypertension associated with aortic dissection.
   a. Administration of NTG for hypertension is a direct order.
   b. **Adult** - See above for SL doses.

Notes

1. Nitroglycerin loses potency easily. Patient's NTG that has no effect must be suspected of being outdated or improperly stored.
2. Common side effects include throbbing headache, flushing, dizziness, and burning under tongue.

Nitroglycerin

3. Generalized vasodilatation may cause profound hypotension and reflex tachycardia, especially if pt. has inferior or right ventricular MI. Placing pt. supine and administering IV fluids are usually effective.
4. Nitroglycerine is contraindicated in patients who have recently taken erectile dysfunction drugs, such as Viagra (sildenafil), Cialis (tadalafil), or Levitra (vardenafil), as refractory hypotension may result. Consult medical control whenever a patient with chest pain has taken erectile dysfunction drugs recently.

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