

NITROGLYCERIN [NTG]

DRUG CLASSIFICATION	Alkyl Nitrate; Glyceryl Trinitrate (GTN) Atrial Natriuretic Peptide Receptor 1 Agonist Antianginal / Antihypertensive / Vasodilator Agent
MECHANISM OF ACTION	Converted by mitochondrial aldehyde dehydrogenase in smooth muscle cells to nitric oxide which, promotes conversion of GTP to cGMP in vascular smooth muscle and other tissues, leading to the relaxation of vascular smooth muscles, arteriolar and venous dilatation; increasing blood flow to the myocardium, reducing cardiac preload and afterload, decreasing myocardial wall stress and ameliorating anginal symptoms; reducing coronary artery spasm, decreasing systemic vascular resistance as well as systolic and diastolic blood pressure.
CLINICAL INDICATIONS	Symptomatic Chest Pain with Suspected Acute Coronary Syndrome (ACS) Pulmonary Edema / Congestive Heart Failure (CHF) with Mild, Moderate, or Severe Symptoms Total Artificial Heart Emergency with Underlying Symptomatic Hypertension (SBP ≥ 150 mmHg)
STANDARD CONTRAINDICATIONS	Hypersensitivity to Nitroglycerin, Nitrates, Nitrites, or Other Relative Components Concomitant use of phosphodiesterase type 5 (PDE-5) inhibitors such as <i>sildenafil</i> , <i>tadalafil</i> , <i>varденаfil</i> , or <i>avanafil</i> in the last 24-36 hours Concomitant use of <i>riociguat</i> (Adempas) or other soluble guanylate C-agonists i.e., <i>linaclotide</i> (Linzess-Pro) or <i>plecanatide</i> (Trulance-Pro) Use in patients with a Systolic Blood Pressure less than 100 mmHg or those in acute circulatory failure or shock Known recent history or suspected state of severe anemia
POTENTIAL ADVERSE EFFECTS	Increased ICP / Anaphylaxis / Methemoglobinemia / Hypotension / Dizziness / Headache / Lightheadedness / Flushing / Dry Mouth
GENERAL RISKS & PRECAUTION	1) Use caution in patients with poor cardiac function, blood volume depletion, existing hypotension, cardiomyopathy, CHF, or acute myocardial infarction. 2) Severe hypotension may occur in patients with constrictive pericarditis, aortic or mitral stenosis, and preexisting hypotension. 3) Patients with concomitant use of diuretics are at greater risk for severe hypotension accompanied by paradoxical bradycardia and angina. 4) Do not use paddle of cardioverter or defibrillator over a transdermal patch as this will concentrate local current and may result in burns. 5) Elderly patients may experience more pronounced adverse events such as hypotension, dizziness, and fainting due to increased sensitivity.
PROTOCOL INDEX	Chest Pain: Cardiac and STEMI (AC-4) CHF / Pulmonary Edema (AC-5) Total Artificial Heart (AC-15) Pediatric Pulmonary Edema / CHF (PC-3)

MEDICATION ADMINISTRATION

ADULT

PEDIATRIC

Chest Pain: Cardiac and STEMI

0.3 / 0.4 mg [SL]; May repeat every 5 minutes (Total # Doses: 3)

-OR- 1 inch of Nitroglycerin Paste [TD]

Mild -to-Moderate CHF / Pulmonary Edema

0.3 / 0.4 mg [SL]; May repeat every 5 minutes as needed if SBP > 100

May consider additional 1 inch of Nitroglycerin Paste [TD]

Total Artificial Heart (SBP ≥ 150 mmHg)

0.3 / 0.4 mg [SL]; May repeat every 5 minutes as needed.

(Maintain SBP ≥ 90 mmHg)

Pediatric Pulmonary Edema / CHF – See PC-3 Pearls

PRIOR CONSULTATION WITH MEDICAL CONTROL IS REQUIRED

NTG dose is to be determined after consultation with Medical Control.