



Nitroglycerin IV Guide

Class:

Venous Vasodilator ; Arterial vasodilator, at high doses (>100mcg/min)

Mechanism of action:

Decreases cardiac pre-load, decreases left ventricle filling pressure = decrease in BP,

Decrease in cardiac workload, increase in cardiac output

Coronary vasodilator, increases coronary perfusion, decreases anginal pain

Pharmacokinetics:

Onset: immediate (peak of action: 1-2 min)

Duration: 3-5 min

Indication:

Treatment or prevention of anginal chest pain, acute coronary syndrome

Acute decompensated congestive heart failure

Hypertension emergency related to myocardial infarction or unstable angina

Dose:

Adults: initial dose 5mcg/min (max 400mcg/min)

-Consider starting higher if sick patient with pulmonary edema or acute chest pain, and titrate up or down as needed. Can start with Sub lingual Nitro until adequate IV nitro perfusion is started.

Pediatrics: initial dose 0,25-0,5mcg/kg/min (usual max 5mcg/kg/min)

Increase by 5mcg/min every 5 minutes until desired response;

-If acute ongoing chest pain, consider increasing by 5mcg/min every 3 min

May increase by 10mcg/min q5 min if still no effect when 20mcg/min is reached

Monitoring:

Check BP before and after every increment. Advise MD if systolic BP <100 mmHg.

Withdrawal: slowly titrate down by decreasing by 5mcg/min every 30 min.

Precautions:

Advise MD if systolic BP <100mmHg or sudden decrease of 20mmHg systolic BP

Be prudent when using in context of hypovolemia or suspected right heart ischemia

Adverse reactions:

Lightheadedness, orthostatic hypotension, vertigo, flushing, pulsatile headache (give Acetaminophen prn), reflex tachycardia

Contra-indications:

Hypersensitivity to organic nitrates or transdermal nitro product

Concurrent use of phosphodiesterase-5 inhibitors

(sildenafil (Viagra), vardenafil (Levitra)<24h, tadalafil (Cialis)<48h)

Increased intracranial pressure, severe anemia, Constrictive pericarditis, pericardial tamponade, restrictive cardiomyopathy, Right ventricular infarct

Presentation:

50mg/10ml amp (ie 5mg/ml)

Suggested preparation:

Always use PVC-free B-braun Kendall bags or glass bottles as well as PVC-free tubing (available in our territories).

*PVC bags makes nitro ineffective; if no PVC free tubing available, PVC tubing is ok, but choose the shortest tube

Stable for 48hr at room temperature; stable for 7 days if in fridge

☐Preparation with 250ml bag (available in Cree territories):

Remove 10ml of a 250ml D5% or NS bag

Instill 50mg (10ml: ie. 1 amp) in this bag

Final (double)concentration = 200mcg/ml

☐Preparation with 500ml bag :

Remove 10ml of a 500ml D5% or NS bag

Instill 50mg (10ml: ie. 1 amp) in this bag

Final (single)concentration = 100mcg/ml

Dose (mcg/min)	Rate (ml/hour)
5mcg/min	1.5ml/hour
10	3
15	4.5
20	6
25	7.5
30	9
35	10.5
40	12
45	13.5
50	15
60	18
70	21
80	24
90	27
100	30
110	33
120	36
140	42

Dose (mcg/min)	Rate (ml/hour)
5mcg/min	3ml/hour
10	6
15	9
20	12
25	15
30	18
35	21
40	24
45	27
50	30
60	36
70	42
80	48
90	54
100	60
110	66
120	72
140	84

Compatibility:

Incompatible with: Caffeine citrate, levofloxacin, phenytoin.

Compatible with (incomplete list): Amiodarone, atropine, ceftriaxone, clonidine, diltiazem, dobutamine, dopamine, epinephrine, esmolol, famotidine, fentanyl, fluconazole, haloperidol, hydromorphone, insulin regular, labetalol, lidocaine, lorazepam, midazolam, milrinone, nicardipine, nitroprusside, norepinephrine, pancuronium, propofol, ranitidine, tacrolimus, thiopental, vasopressin, vecuronium.

Variable compatibility with: Alteplase, furosemide, heparin, hydralazine, metoprolol, pantoprazole, tenecteplase.

Pregnancy risk factor: C

The benefits vs risks in the context of pregnancy should be taken by the physician in charge. Case by case consideration can be discussed with our referral center specialists.

References

Nitroglycerine, Guide d'administration intraveineuse des drogues critiques, 6e Édition, 2012
Uptodate.com, Nitroglycerine: Drug information, accessed August 6th 2012

Created December 2012

Accepted by CBHSSJB Pharmacology Committee Jan 17, 2013 and CMDP resolution# 20130122.003