## Drug Profile for NOREPINEPHRINE

**GENERIC NAME: NOREPINEPHRINE**
**CLASS:** Sympathomimetic, Alpha- and beta- adrenergic agonist, inotropic cardiac stimulant, Vasopressor

Mechanism of Action:

Stimulates beta1 and alpha1 receptors in sympathetic nervous system, causing vasoconstriction, increased blood pressure, enhanced contractility, and decreased heart rate.

Indications and Field Use:

Severe hypotension- due to cardiogenic, septic, or neurogenic shock either refractory to intravascular fluid boluses or in which intravascular fluid bolusing is contraindicated (e.g. pulmonary edema).

Contraindications:

- Hypersensitivity to drug
- Hypotension caused by blood volume deficit (except in emergencies until blood volume replacement is completed), profound hypoxia or hypercarbia
- Mesenteric or peripheral vascular thrombosis

Adverse Reactions:

- CNS: headache, anxiety
- CV: bradycardia, severe hypertension, arrhythmias
- Respiratory: respiratory difficulty
- Skin: irritation with extravasation, necrosis
- Other: ischemic injury

- Overdosage with norepinephrine may result in headache, severe hypertension, reflex bradycardia, marked increase in peripheral resistance, and decreased cardiac output. In case of accidental overdosage, as evidenced by excessive blood pressure elevation, discontinue norepinephrine until the condition of the patient stabilizes.

NOTES ON ADMINISTRATION

Incompatibilities/Drug Interactions:

- Alpha-adrenergic blockers: antagonism of norepinephrine effects
- Antihistamines, ergot alkaloids, guanethidine, MAO inhibitors, oxytocin, tricyclic antidepressants: severe hypertension
- Bretylium, inhalation anesthetics: increased risk of arrhythmias

## Drug Profile for NOREPINEPHRINE

Adult Dosages:

Initial dose: 2 to 4 mcg/min

Maintenance dose: Adjust the rate for a low normal blood pressure (usually 80 to 100 mm Hg systolic). The average maintenance dose ranges from 1 to 12 mcg/min (maximum dose 30 mcg/min).

Pediatric Dosages:

0.1 – 2 mcg/kg/min: 2 mcg/kg/min max

Routes of administration:

IV use large vein- central line preferable

Onset of Action:

Immediate

Peak Effects:

Immediate

Duration of Action:

1-2 minutes after infusion is stopped

Arizona Drug Box Minimum Supply:

NONE: Interfacility transport medication

Special Notes:

- Use IV pump only to infuse
- Monitor IV site closely for extravasation
- Watch for signs of inadequate peripheral tissue perfusion, pale-cyanotic-black
- Never leave patient unattended during infusion
- Monitor VS Q 5 minutes
- Infusions should be reduced gradually, avoiding abrupt withdrawal
- Severe tissue necrosis can occur with extravasation

**Drug Profile for PROPOFOL**

**GENERIC NAME: PROPOFOL**
**CLASS:** General Anesthetic

Mechanism of Action:

Sedative-hypnoticagent. Suspected to produce effects by the positive modulation of the inhibitory function of the neurotransmitter gamma aminobutyric acid (GABA) through the ligand-gated GABA receptors

Indications:

Intensive care unit (ICU) sedation of intubated mechanically ventilated adult patients

Contraindications:

Allergies to eggs, egg products, soybeans, or soy products

Adverse Reactions:

Bradycardia, arrhythmia, hypotension, HTN, tachycardia nodal, decreased cardiac output, CNS movement, injection-site burning/stinging/pain, hyperlipemia, apnea, rash, pruritus, respiratory acidosis during weaning.

NOTES ON ADMINISTRATION

Incompatibilities/Drug Interactions:

Increased effects with narcotics (eg., morphine, meperidine, fentanyl), combinations of opioids and sedatives (e.g., benzodiazepines, barbiturates, chloral hydrate, droperidol) and potent inhalational agents (e.g., isoflurane, enflurane, halothane). Concomitant fentanyl may cause bradycardia in pediatrics. Increased risk of propofol infusion syndrome with vasoconstrictors, steroids, and inotropes

Adult Dosages:

ICU Sedation: Initial: 5 mcg/kg/min IV for at least 5 min, then increased by increments of 5-10 mcg/kg/min IV over 5-10 min until desired clinical effect. Maint: 5-50 mcg/kg/min IV or higher may be required. Max: 4000 mcg/kg/hr.

Pediatric Dosages:

Safety and efficacy has not been well established for continuous sedation.

Routes of administration:

IV infusion

Onset of Action:

Less than 1 minute

Peak Effects:

1-2 minutes

Duration of Action:

4-8 minutes

Arizona Drug Box Minimum Supply:

None: Interfacility Transport Agent

Monitoring:

Monitor for anaphylactic/anaphylactoid reactions, hypotension and/or cardiovascular depression, apnea, airway obstruction and/or oxygen de-saturation, decrease in cerebral perfusion pressure, signs/symptoms of propofol infusion syndrome, postoperative unconsciousness with increased muscle tone, pulmonary edema, increased vagal tone, pancreatitis, and other adverse events.

Special Notes:

- Fatal and life-threatening anaphylactic reactions reported.
- Proper use of aseptic technique required to prevent microbial contamination.
- Lower induction doses and slower rate of administration needed in elderly, debilitated or ASA-PS III/IV patients; monitor for early signs of hypotension, bradycardia, apnea, airway obstruction, and/or oxygen de-saturation.
- May cause propofol infusion syndrome in ICU sedation characterized by severe metabolic acidosis, hyperkalemia, lipidemia, rhabdomyolysis, hepatomegaly, and cardiac/renal failure. Consider alternative means of sedation if increased dose is required or metabolic acidosis occurs.
- Avoid abrupt d/c prior to weaning or for daily evaluation of sedation level; may result in rapid awakening with associated anxiety, agitation, and resistance to mechanical ventilation.
- Local pain, swelling, blisters, tissue necrosis reported following accidental extravasation.
- Failure to reduce infusion rate in ICU sedation for extended periods may result in excessively high blood concentrations. May elevate serum tri-glycerides when administered in extended periods; caution with disorders of lipid metabolism.
- Do not infuse for >5 days without drug holiday to replace zinc losses; consider supplemental zinc with chronic use in those predisposed to zinc deficiency.
- In renal impairment, perform baseline urinalysis/urine sediment, then monitor on alternate days during sedation.
- Correct fluid deficits prior to use.

**Drug Profile for INSULIN**

**GENERIC NAME: INSULIN**
**CLASS:** Pancreatic hormone

Mechanism of Action:

Promotes glucose transport, which stimulates carbohydrate metabolism in skeletal and cardiac muscle and adipose tissue. Also promotes phosphorylation of glucose in liver, where it's converted to glycogen. Directly affects fat and protein metabolism, stimulates protein synthesis, inhibits release of free fatty acids, and indirectly decreases phosphate and potassium

Indications and Field Use:

Type 1 (insulin-dependent) diabetes mellitus; type 2 (non-insulin-dependent) diabetes mellitus unresponsive to diet and oral hypoglycemics

Contraindications:

Hypersensitivity to drug or its components
Hypoglycemia

Adverse Reactions:

Metabolic: hypokalemia, sodium retention, hypoglycemia, rebound hyperglycemia (Somogyi effect).

Skin: urticaria, rash, pruritus

Other: edema; lipodystrophy; lipohypertrophy; erythema, stinging, or warmth at injection site; allergic reactions including anaphylaxis.

NOTES ON ADMINISTRATION

Incompatibilities/Drug Interactions:

Drug-drug. Acetazolamide, albuterol, antiretrovirals, asparaginase, calcitonin, corticosteroids, cyclophosphamide, danazol, dextrothyroxine, diazoxide, diltiazem, diuretics, dobutamine, epinephrine, estrogens, hormonal contraceptives, isoniazid, morphine, niacin, phenothiazines, phenytoin, somatropin, terbutaline, thyroid hormones: *decreased hypoglycemic effect*

Anabolic steroids, angiotensin-converting enzyme inhibitors, calcium, chloroquine, clofibrate, clonidine, disopyramide, fluoxetine, guanethidine, mebendazole, MAO inhibitors, octreotide, oral hypoglycemics, phenylbutazone, propoxyphene, pyridoxine, salicylates, sulfinpyrazone, sulfonamides, tetracyclines: *increased hypoglycemic effect*
Beta-adrenergic blockers (nonselective): *masking of some hypoglycemia symptoms, delayed recovery from hypoglycemia*

Lithium carbonate: *decreased or increased hypoglycemic effect*

Pentamidine: *increased hypoglycemic effect, possibly followed by hyperglycemia*

Dosage:

Adults and children: Continuous infusion of 0.1 unit/kg/hour until glucose level drops to 250 mg/dl or lower.

Routes of administration:

IV (Regular)

Onset of Action:

10-30 minutes

Peak Effects:

15-30 minutes

Duration of Action:

Unknown

Arizona Drug Box Minimum Supply:

NONE: Interfacility Transport Agent

Special Notes:

- In patients with DKA care should be taken to not reduce blood glucose below 200-250 mg/dl, in first 4-6 hours as rebound hypoglycemia may occur. Target decrease in blood glucose level should be ~75 mg/dl/hr.
- FSBG should be obtained every 30-60 minutes.
- For IV infusion, mix regular insulin only with normal or half-normal saline solution, as prescribed, to yield a concentration of 1 unit/ml.