LEVOPHED
NOREPINEPHRINE

BREMS
Blue Ridge Emergency Medical Services Council, Inc.

CLASS AND MECHANISM OF ACTION:

- Inotrope/Vasopressor
- Sympathomimetics “mimic” functions of the sympathetic nervous system a.k.a the “fight or flight response”. Norepi is naturally produced in the body. Therefore making Levophed extremely useful in the treatment of critically low blood pressure!

MECHANISM OF ACTION

- Stimulates Alpha & Beta 1 adrenergic receptors; Alpha & Beta 1 agonist as well as a sympathomimetic.
  - Alpha 1 receptors are stimulated to systemically constrict the vessels
    - In a patient who is not gaining substantial cardiac output and is refractory to fluid administration, Levophed will act on these receptors to increase the constriction on the vessels, therefore increasing the blood pressure.
  - Beta 1 receptors are stimulated to increase the heart rate.
  - Remember, 1 heart – 2 lungs! ☺

INDICATIONS:

- Hypotension in adult patients who are refractory (does not respond) to fluid boluses.
  - Systolic of <90 mmHg
  - Due to cardiogenic, neurogenic, or septic shock

CONTRAINDICATIONS/CAUTIONS:

- Allergy/hypersensitivity to Levophed
  - As with any patient when considering medication administration, ask further questions to define a “sensitivity” versus a true severe allergic reaction.Do not administer if the patient has a previous history of an anaphylactic reaction to Levophed.
    - Monitor for signs of airway compromise, altered mental status, hypoxia, hypotension, uticaria (rash) or hives.
- Not administered to pediatrics
- Hypovolemia/severe volume depletion and/or dehydration
- History of mesenteric or peripheral vascular thrombus because of risks of increasing ischemia and/or extending the area of the infarction
- Caution: Patients taking MAOIs, antihistamines, anti-depressants, or imipramine types because of risk of prolonged hypertension

SIDE EFFECTS:

- Hypertension
- Headache
- Anxiety
- Dyspnea (shortness of breath)
- Arrhythmias
- Ischemic injury

HOW TO MIX:

- Select your equipment. What will you need?
  - A patent IV must be placed. If the PIV site you have chosen is positional or questionable, chose another site. Or place a humeral IO if unable to place a patent PIV.
  - **(1) bag of 250 mLs of D5W.** *Why D5W and not NSF?*
    - The answer is that typically the makeup of D5W will help to conserve the potency of the vasopressor. If you do not have D5W, use 250 NSF if needed.
  - **(1) 20 mL syringe.** *Why?*
    - Because each Levo vial contains 4mg/4ml. Since you will use all 4 vials, the total mLs are 16.
  - **(1) syringe needle – any size is fine.** (This will only be used on the syringe to draw the medication out of the vials.)
  - **(1) 60 gtts set (drip set)**
- Remove all 4 vials of Levophed from the drug box
- Select the 20 mL syringe. Attach needle. Draw all 4 vials into the syringe.

HOW TO MIX (CONT.):

- On the base of the bag of 250mLs of D5W, there are two ports.
- The white tab on the right will be removed in order to place the drip set.
- The orange tab on the left will be the port that you will place the Levo into. Turn the bag upside down in order to place the medication in the port.
  - Mix gently. Open the dial flow to flush all air out of the line.
    - However, be careful not to flush the line generously as to waste the mixed medication.
  - Since the medication is a 1:1 concentration, the 5mcg/min suggested dose will also be the drops/min. For this protocol, the drops/min is 5.
  - With that said, utilizing a watch, adjust the dial flow to 5 drops per minute. Or one drop every 12 seconds.
- It is of high importance to monitor this drip closely and to no misjudge the drip rate. Too high of a concentration of this medication could cause severe hypertension.

DOSING:

- Remember, you must FILL the pump before you can PRIME the pump. The pump being the heart and vessels. Therefore, you must always remember to administer at least 1 liter of fluid prior to administering Levophed, or any vasopressor for that matter.
- IV/IO Infusion of 5 mcg/min
  - Titrate to a systolic BP of >90 mmHg
  - Max infusion of 12 mcg/min

- Levophed Adult Dosage Chart

mcg/min	2	4	6	8	10	12
drops/min	2	4	6	8	10	12

ADDITIONAL MATERIAL:

- http://www.jems.com/articles/print/volume-39/issue-3/features/assessing-managing-sepsis-in-the-prehospital-setting.html
  - Excellent article from JEMS in regards to managing sepsis, to include Levophed

- The above article is provided independently from the JEMS website. Clicking on the link will take you to an external website.