Peripheral noradrenaline infusions in critical care

This guideline is for use in the following areas only:

- WGH: Intensive care unit Ward 20
- SJH: Intensive care unit

Peripheral noradrenaline infusions may be commenced in other areas under direction of the ICU team *in a patient awaiting transfer to any of the above areas.*
The decision to to commence noradrenaline by peripheral infusion must be made by or discussed with the ICU consultant on call.

Patient group
Patients with mild/moderate hypotension requiring vasopressors.

Indications:

- Bridging measure whilst awaiting CVC insertion eg stabilisation of critically unwell patients awaiting transfer to ICU
- In patients where CVC insertion carries additional risk (coagulopathy, thrombocytopenia)
- Short term use in patients who are likely to require brief vasopressor support eg urosepsis, post-operative mild/moderate hypotension

Concentration
The standard concentration for administration via peripheral venous cannula is 16 micrograms/ml (dilute 4mg noradrenaline (1mg/ml) with 246ml 5% Glucose to provide a final concentration of 16 micrograms/ml)

Infusion rate
Administer via an infusion pump at a rate of 13 ml/h (210 microgram/hour).Titrate to desired effect. Maximum rate 25 ml/hr.

Duration of infusion shoud be decided on a case by case basis at the discretion of the responsible senior decision maker. Maximum 24 hours with scheduled senior review at 12 hours.

After discontinuation, flush the peripheral cannula with sodium chloride 0.9% at the same rate the medicine was infused to avoid adverse haemodynamic effects.

Concomitant administration of noradrenaline and other medicines via a Y-site should be avoided to prevent inadvertent bolus administration of noradrenaline

Access

- Peripheral noradrenaline infusion should be administered through at least a 20G peripheral venous cannula.

- Locate in a site in the arm, proximal to the wrist in a clearly visible location.
- Avoid sites of flexion in awake aptients due to risk of occlusion
- Avoid sites that have had more than 1 venepuncture
- Ensure there is reurn of blood following insertion of PVC and that PVC fluses easily with 5-10ml of 0.9% sodium chloride. A clear dressing allowing inspection of point of insertion should be applied.
- Site second PVC in case of failure of primary site
- Infusion should be a dedicated line with no other infusions running, clearly labelled 'peripheral noradrenaline'

Monitoring

Invasive blood pressure monitoring via arterial line is recommended
If non invasive BP monitoring used this should cycle at 5 minute intervals and cuff should be placed on different limb to infusion site
Inspect cannula site every 30 minutes (blanching, erythema, swelling, extravasation)

Management of extravasation of peripheral noradrenaline infusion

1. Stop the infusion immediately and disconnect the line from PVC
2. Attempt to aspirate 3-5ml from the PVC
3. Remove the cannula and apply a dressing to the removal site
4. Mark the extravasation area if possible, in order to allow monitoring of any developing injury
5. Elevate the affected limb if able to do so to reduce any swelling
6. Consider the application of a topical vasoactive agent to encourage local blood flow (eg nitroglycerin paste)
7. Administer analgesia if required
8. Seek advice from surgical team or local tissue viability service if concerned
9. Document the incident and report via DATIX

Critical Care Guidelines
FOR CRITICAL CARE USE ONLY

Noradrenaline by <u>PERIPHERAL</u> administration

PRESENTATION: **Update April 2020: New Pfizer product**	1mg/ml injection: 4ml or 8ml ampoules of noradrenaline base. **Norepinephrine bitartrate** 1mg/ml: 4ml vial equivalent to 4ml noradrenaline base.
INDICATION:	Naturally occurring catecholamine primarily used for vasoconstriction. It has some inotropic effects in many cases. It's effect on blood pressure ceases 1-2 minutes after discontinuing.
DOSE AND ADMINISTRATION:	ICU STANDARD INTRAVENOUS INFUSION **For peripheral administration: Add 4ml of noradrenaline (1mg/m) lto 246ml bag of 5% glucose** Start at 0.05mcg/kg/min. Administer via an infusion pump at a rate of 210microgram/hour (13mL/hour of the standard concentration given above, based on a 70kg patient at a starting dose of 0.05microgram/kg/min*). Titrate to desired effect. MAXIMUM RATE of 25ml/hr. Peripheral noradrenaline infusion should be administered through at least a 20G peripheral venous cannula
CONCENTRATION:	**Peripheral strength** 16micrograms/ml
STABILITY:	Physically & chemically stable for 24 hours at room temp. Protect from light.
ADDITIONAL NOTES:	After discontinuation, flush the peripheral cannula with sodium chloride 0.9% at the same rate the medicine was infused to avoid adverse haemodynamic effects. The concomitant administration of noradrenaline and other medicines via a Y-site should be avoided to prevent inadvertent bolus administration of noradrenaline. Also stable for 24 hours in 0.9% sodium chloride but more stable in glucose 5%. **Norepinephrine Pfizer brand is ONLY stable in glucose 5%.** Do not use any infusion if discoloured or has a precipitate.
Allergy Status	**Norepinephrine Pfizer brand contains sodium metabisulphite as a preservative. Sulphite sensitivity seen more frequently in asthmatic population.**

References
Electronic Medicines Compendium available at http://www.medicines.org.uk Medusa Injectable Medicines Guide available at http://medusa.wales.nhs.uk Medicines Complete available at http://www.medicinescomplete.com
*Starting dose based on CENSER study

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