ALGORITHM ON THE USE OF INHALED NITRIC OXIDE (INO) ON ST MICHAELS WARD

Blood Gas in PICU to include MEtHB level PRE + Post iNO day 1 and weekly thereafter

Pre procedure
- Check observations prior to inhalation and note and report deviations
- Methaemoglobin monitoring in place and functioning
- Clinical engineering present and Nitric Oxide set up complete
- Reviewed pre-commencement on day 1 by Respiratory consultant on call
- 1:2 nursing staff available for duration of treatment
- Antedote on the ward with dosage and IV sheet
- Urine Dipstick

During Procedure
- Monitor T, P, R, BP and 02 sats every 15mins during inhalation
- Observe from outside the room observations on the monitor and report deviations
- Monitor Methaemoglobin throughout procedure

Post Procedure
- Monitor observations 30minutes following procedure
- Enter the room 6 minutes following treatment completion
- Monitor Methaemoglobin x 10 episodes post procedure, once these have all returned to baseline, post MetHb monitoring can be discontinued

EFFECTS OF NITRIC OXIDE INHALATION

Side Effects
- iNO combines with oxygen to produce NO2 which is a toxic gas
- Methemoglobin is formed when NO reacts with haemoglobin
- Methemoglobin is incapable of transporting oxygen
- Platelet dysfunction and bleeding problems are theoretical as iNO may affect platelet aggregation and thrombus formation

Cardiovascular
Common (1% to 10%): Hypotension
Post marketing reports: Bradycardia (following abrupt discontinuation of therapy)

Respiratory
Common (1% to 10%): Atelectasis
Post marketing reports: Hypoxia, dyspnoea, chest discomfort, dry throat

Nervous system
Post marketing reports: Headache, dizziness

More Common
- Blurred vision, confusion, dizziness, faintness, or lightheadedness when getting up suddenly from a lying or sitting position, sweating, unusual tiredness or weakness

Symptoms of Overdose
- Bluish-coloured lips, fingernails, or palms, dark urine, fever headache, pale skin, rapid heart rate, sore throat, unusual bleeding or bruising

Treatment of overdose
- Escalation algorithm for intervention and emergency action (cessation of treatment) required antidote methylene blue 1-2 mg/kg pre-prescribed in advance to treatment initiation. Termination of treatment was required if any safety related side-effects (arterial hypotension: systolic <99mmhg, MetHB >5%, SaO2 <88%, N02 >5ppm. (Yaacoby-Bianu et al, 2017)

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