NEWBORN USE ONLY
GIVEN ON DOCTORS ORDER ONLY

CAFFEINE BASE

USE
1. Management of apnoea of prematurity.
2. Prevent/treat postoperative apnoea following general anaesthesia in preterm neonates.

ACTION
Decreases apnoea of prematurity by
1. Stimulation of central inspiratory drive
2. Increased sensitivity of medullary respiratory centre to CO₂

OTHER EFFECTS
1. Relaxation of pulmonary airway smooth muscle.
2. Increased renal blood flow, diuresis and increased urine calcium excretion.

PHARMACOKINETICS
Rapidly and well absorbed from the GI tract. Metabolised mainly in the liver and excreted predominantly in urine. Rapidly distributed in the brain, with CNS levels approximating plasma levels. Half-life varies from 40 to 230 hours, decreasing with advancing age. Half life is prolonged in infants with cholestatic hepatitis. Caffeine appears to have similar efficacy on apnoeas/bradycardias, but it has better therapeutic advantages over theophylline because of caffeine’s higher therapeutic ratio, less side effects, more reliable enteral absorption and a longer half life.

PREPARATION
IV 50mg/5ml of caffeine base ampoule.
Oral 10mg/1ml of caffeine base solution.

DOSE
IV Loading dose 10-20mg/kg/dose of caffeine
Maintenance dose 5mg/kg/day once a day. Commence 24 hours after the loading dose.
ORAL Loading dose 10-20mg/kg/dose of caffeine base.
Maintenance dose 5mg/kg/day once a day. Commence 24 hours after the loading dose.

RECONSTITUTION
IV Add 2ml (20mg) of caffeine injection to 8ml of water for injection to make a 2mg/ml solution.

ADMINISTRATION
IV Infuse over 30 minutes using the proximal IV bung.
ORAL Give with feeds.

NOTE
Some preparations (not used in our unit) contain caffeine citrate. The dose of caffeine citrate is approximately twice the dose of caffeine base (e.g. 10mg of caffeine citrate contains 5mg of caffeine base).

SERUM LEVEL
Therapeutic 5-30mcg/ml (26-156micromol/l)
Toxicity >50mg/l
Serum levels are to be done only when clinically indicated. Usual sampling time is midway between doses to reflect average serum levels.
Steady state is probably achieved after 4-6 days of maintenance dose.
Dose adjustments prior to steady state being reached may be inappropriate.
CAFFEIN BASE cont

CEASING CAFFEINE Consider ceasing Caffeine if infant has had >1 week without documented apnoea.

RESTARTING CAFFEINE Use loading dose if >72 hours passed after ceasing. Recomence maintainence dose if <72 hours passed after ceasing.

ADVERSE EFFECT
1. Sinus tachycardia
2. Vomiting
3. Restlessness, irritability, twitching, tremors, seizures
4. Diuresis, dehydration.
5. Hyperglycaemia, glycosuria.
6. Increased oxygen consumption and metabolic rate and reduced weight gain.

SOLUTION COMPATIBILITY 5%dextrose, 0.9%sodium chloride

TERMINAL INJECTION SITE COMPATIBILITY 10%dextrose, amino acide, calcium gluconate

INCOMPATIBILITY No data available

REFERENCE
Neonatal Formulary 5, Drug use in Pregnancy and First Year of Life, 2007, Blackwell Publishing Ltd