

## **BLUNTING THE INTUBATION RESPONSE**

The intubation response needs to be suppressed or blunted in many cases, to prevent cardiorespiratory or neurological worsening of an underlying patient condition. This may often occur in unstable or emergency patients, therefore care must be taken to institute effective blunting, but maintain acceptable hemodynamics.

These include intubations in patients with:

- Pregnancy-induced hypertensive conditions (PET / Eclampsia) – **see separate protocol**
- Unstable hypertension or hypertensive urgency / emergency
- Decompensated cardiac failure or pulmonary oedema
- High-risk IHD (ischemic heart disease) or cerebrovascular disease
- High-risk CNS conditions – raised ICP, acute traumatic brain injury, acute stroke, brain oedema, cerebral artery aneurysm clipping (ruptured or unruptured)

### METHOD

There are various methods of effectively suppressing the intubation response. The basis of suppression is to use a sufficient dose of a chosen induction agent combined with a suppressive dose of a short-acting opiate, possibly combined with an adjunct drug with anti-catecholamine effects.

#### **INDUCTION AGENT**

Propofol at 2-2.5mg/kg in stable patients

Etomidate at 0.2mg/kg or Ketofol (Propofol 1-1.5mg/kg + Ketamine 0.25-0.3mg/kg) may be used in the less hemodynamically stable patient

#### **SHORT-ACTING OPIATES**

It is clear that there is **no** place for Morphine, Pethidine, Omnopon or Tramadol in this scenario.

**Alfentanil (Rapifen®)** is regarded as the drug of choice and is very effective in a dose of 10µg/kg, 90-120 seconds before intubation.

**Remifentanil (Ultiva®)** is also highly effective in a dose of 1-2µg/kg 60 seconds before intubation; it is shorter acting than alfentanil, but it is expensive and not readily available in the public sector. It may cause severe hypotension and bradycardia in hemodynamically unstable or hypovolemic patients and must be used with care.

**Fentanyl** may also be used, although not an ideal choice. To suppress intubation, 2µg/kg should be given **5-6 minutes** before intubation

## ADJUNCTIVE DRUGS

### **Magnesium sulphate.**

Magnesium is a highly effective anti-catecholamine with vasodilatory action.

It has strong membrane-stabilizing effects and antagonizes calcium release.

It effectively obtunds the intubation response without a hypotensive effect, when used in a bolus dose of **30-40mg/kg** IV just after induction.

Its effect is additive when combined with a short-acting opiate, eg Alfentanil (see above), in severe cases.

Where the risk associated with an intubation response is very high, much higher doses may be considered, eg Alfentanil 30µg/kg + Magnesium sulphate 60mg/kg. When these doses are used, be prepared to manage hypotension after intubation, even in stable patients.

### **Lignocaine.**

Despite the fact that many anaesthesia texts still teach IV lignocaine's use in suppressing the intubation response, it is clear from more recent literature reviews, that its effect is mild, inconsistent and unreliable.

It has some membrane stabilizing effects, but no anti-catecholamine action. It has no reliable place in suppressing the intubation response.

### **Esmolol (Breviblok®).**

This short-acting and selective IV  $\beta$ -blocker, although presently unavailable, is set to return to clinical use in the near future. In an IV bolus dose of 0.5mg/kg, given 2 minutes prior to intubation, it effectively produces moderate hypotension and slowing of the heart rate lasting for 5-7minutes, with gradual return to the baseline.

It has some membrane-stabilizing properties as well as anti-catecholamine effects.

It must be used with caution in patients with decompensated cardiac failure, hypovolemic and shock states. It may be used as an adjunct or a stand-alone drug.

When used without short-acting opiates, additional  $\alpha$ -blockade should be strongly considered in patients with severe or uncontrolled hypertensive conditions, so as to prevent an unwanted inadvertent hypertensive crisis by unopposed  $\alpha$ -stimulation during intubation.