Norepinephrine (INN)

(abbreviated norepi or NE), also called noradrenaline (BAN) (abbreviated NA, NAd, or norad), or 4,5-β-trihydroxy phenethylamine is a catecholamine with multiple roles including those as a hormone and a neurotransmitter.

It is the hormone and neurotransmitter most responsible for vigilant concentration in contrast to its most chemically similar hormone, dopamine, which is most responsible for cognitive alertness.

Noradrenaline plays an essential role in the modulation of arousal, attention, cognitive function, stress, and pain. The locus coeruleus, the largest source of noradrenaline in the brain, is involved in the sensory and emotional processing of pain. This review summarizes the knowledge about the involvement of noradrenaline in acute and chronic trigeminal pain conditions and how the activity of the locus coeruleus noradrenergic neurons changes in response to acute and chronic pain conditions and how these changes might be involved in pain-related comorbidities including anxiety, depression, and sleep disturbance [1)].

Vagus nerve stimulation (VNS) is believed to increase norepinephrine (NE) levels via activation of the locus coeruleus, [2)].

Indications

Medically it is used in those with severe hypotension. It does this by increasing vascular tone (tension of vascular smooth muscle) through α-adrenergic receptor activation.

Norepinephrine (NE) is recommended first-line for treatment of septic shock, partly due to its intrinsically low effect on heart rate. While dysrhythmias secondary to NE are still reported, factors associated with development of this adverse effect have not been described. Our study sought to investigate factors associated with dysrhythmias in patients receiving NE for septic shock.

Wieruszewski et al. conducted a retrospective cohort study of adults receiving NE for septic shock if NE was initiated as the first vasopressor and continued for at least 6 h. The primary objective was to determine the rate of dysrhythmias among this patient population. Secondary objectives included determining the effect of dysrhythmia development on patient outcomes and elucidating predictors for dysrhythmia development.

Of the 250 patients included, 34.4% (n = 86) developed a dysrhythmia. These patients had higher mortality (30.5% vs. 63.9%; $p < 0.001$) with decreased ICU-free days (2 vs. 4; $p = 0.04$) and ventilator-free days (7 vs. 4; $p = 0.048$). Duration of NE infusion and maximum NE dose were found to be independently associated with increased rates of dysrhythmia ($p < 0.005$).

Development of dysrhythmia is associated with increased mortality and is independently associated

with longer duration of NE infusion and higher NE doses [3].

1)
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2)
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