

INVOLVEMENT OF SEROTONERGIC, NORADRENERGIC AND GABAERGIC SYSTEMS IN THE ANTINOCICEPTIVE EFFECT OF A KETAMINE-MAGNESIUM SULFATE COMBINATION IN ACUTE PAIN

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Ketamine and magnesium can interact in additive, supra-additive and antagonistic manners in analgesia or anesthesia. Ketamine is a non-competitive NMDA receptor antagonist. Magnesium is an endogenous non-competitive NMDA antagonist that causes anion channel blockade in a dose-dependent manner. It has been established that ketamine and magnesium interact synergistically in the tail-immersion test in rats.

To determine the role of serotonergic, GABAergic and noradrenergic systems in analgesia induced by the ketamine-magnesium sulfate combination.

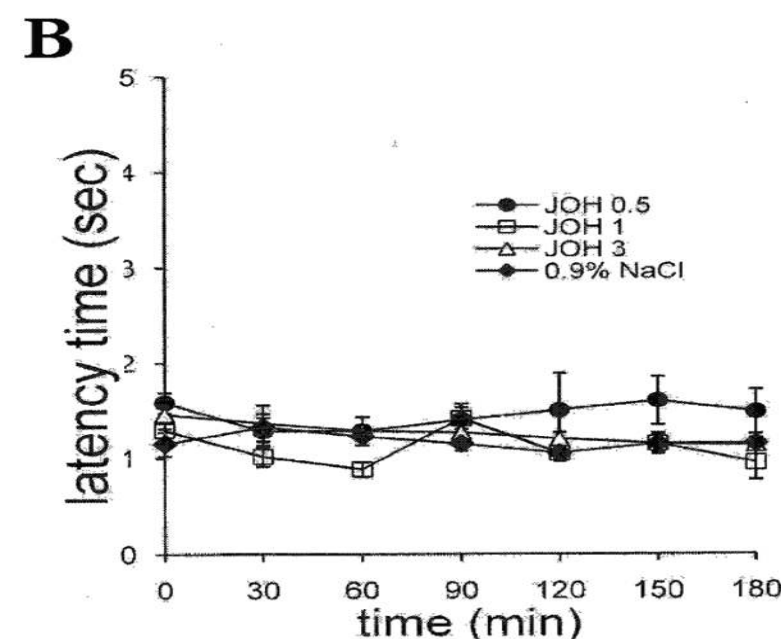
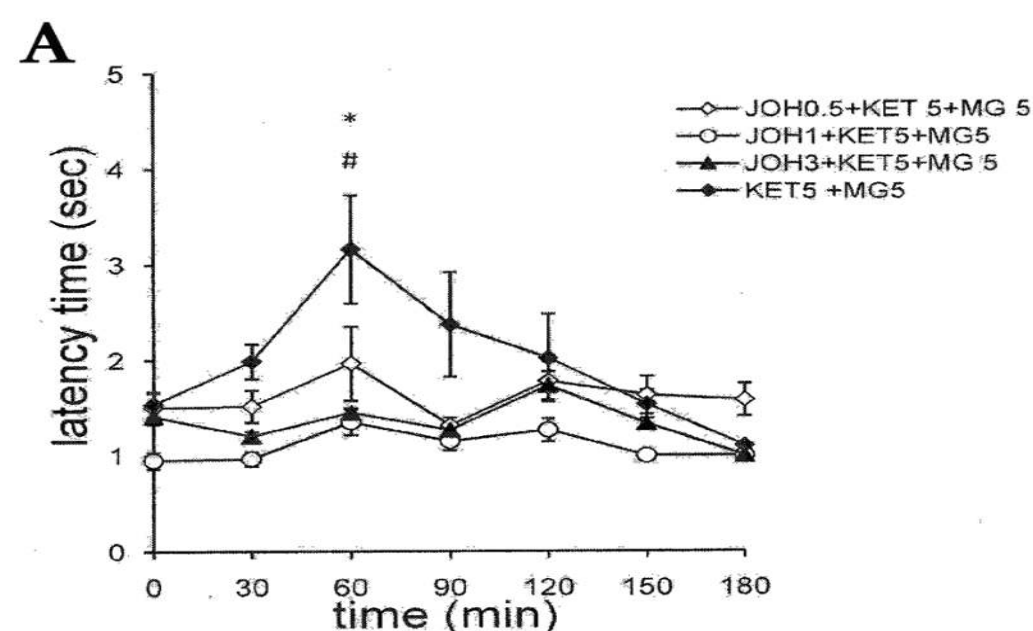
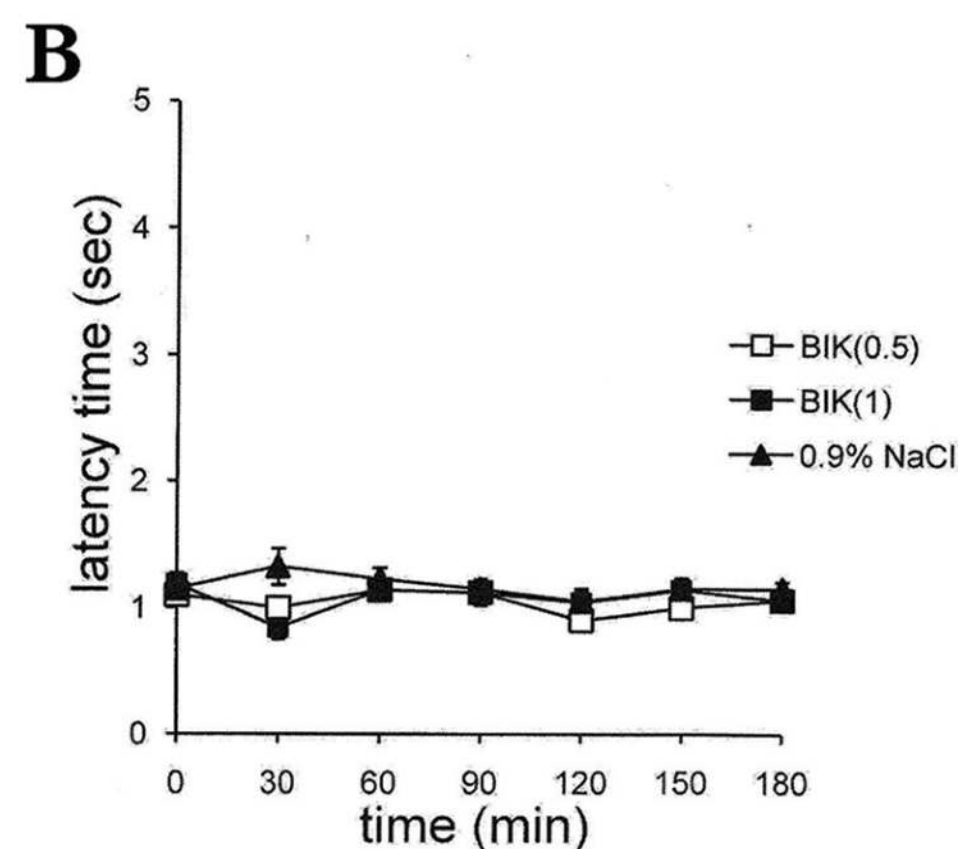
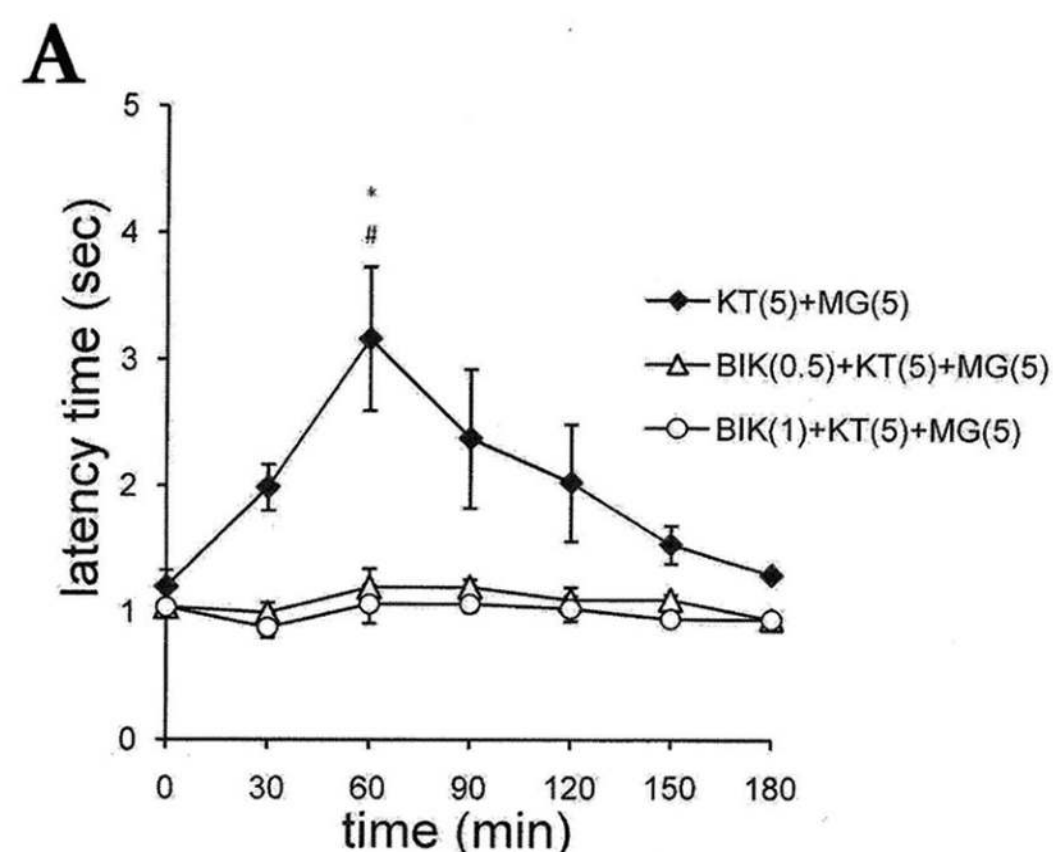
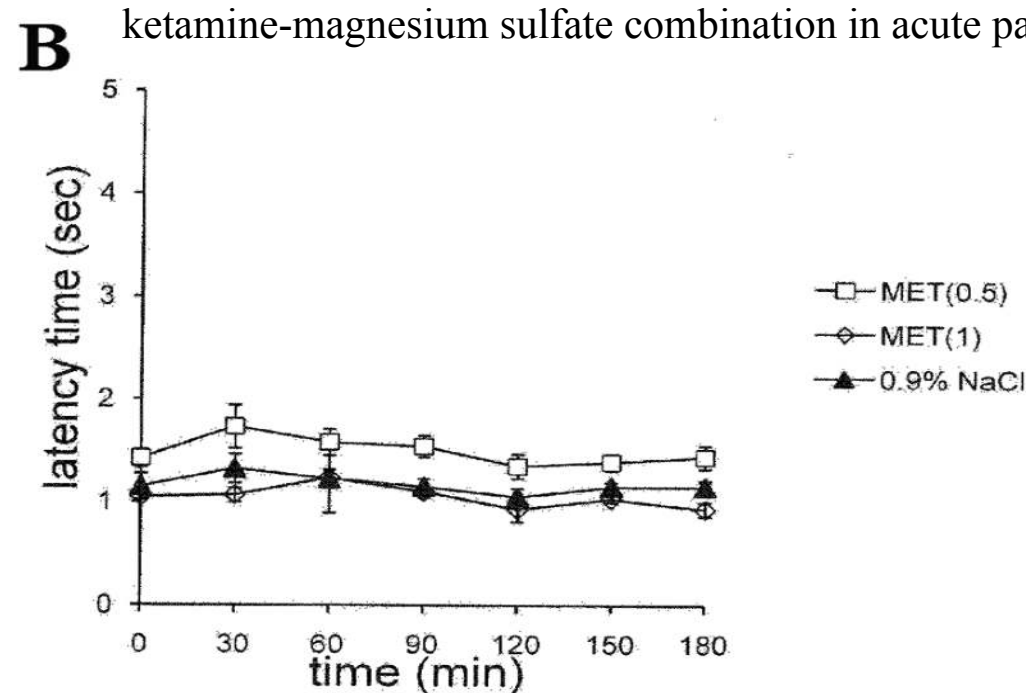
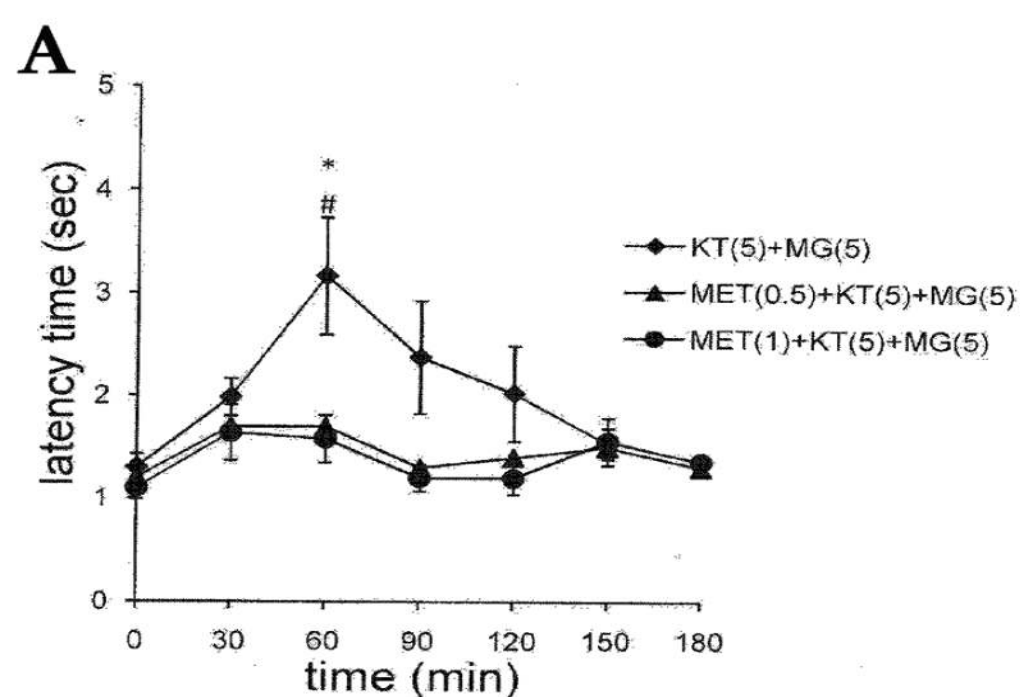
Experiments were performed on male Wistar albino rats (200-250 g). Antinociception was evaluated by the tail-immersion test.

rats.

Methysergide (0.5 and 1 mg/kg, sc) administered alone did not affect nociception in rats. Methysergide (0.5 and 1 mg/kg, sc) antagonized the antinociceptive effect of the ketamine (5 mg/kg)-magnesium sulfate (5mg/kg) combination. Bicuculline (0.5 and 1 mg/kg, sc) given alone did not change the threshold to thermal stimuli in rats.

Bicuculline (0.5 and 1 mg/kg, sc) antagonized the antinociceptive effect of the ketamine (5 mg/kg)-magnesium sulfate (5 mg/kg) combination. Yohimbine (0.5, 1 and 3 mg/kg, sc) applied alone did not change nociception. Yohimbine at a dose of 0.5 mg/kg did not influence the effect of ketamine (5 mg/kg)-magnesium sulfate (5 mg/kg), while yohimbine at doses of 1 and 3 mg/kg antagonized the antinociceptive effect of this combination.

Serotonergic, noradrenergic and GABAergic systems participate, at least in part, in the antinociceptive effect of the ketamine-magnesium sulfate combination in acute pain in rats.



This work was supported by the Ministry of Education, Science and Technological Development of the Republic of Serbia (Grant No. 175023).

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