

عنوان مقاله:

Effects of Vitamin C and Citicoline on Morphine-Inducing Tolerance In Mice

محل انتشار:

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خلاصه مقاله:

Introduction: The issue of evolving tolerance to opioid analgesia is a major problem in relation to pain management within the field of medicine, as in cancer patients. This paper seeks to remedy this problem by evaluating vitamin C and citicoline on tolerance postponement, depending on proven founded inhibiting effects on glutamatergic system of which hyper activation will result in tolerance. **Aim:** This study set out to assess effects of vitamin C and citicoline on morphine-induced tolerance postponement in male mice. **Methods:** Nine male albino mice groups ($n=8$, 0.02-0.03 g) received certain drug regimens for four days concurrently with daily morphine in order to tolerance development. On the fifth day, through the Hot-plate test, pain response to thermal stimulation at 15, 30, 45 and 60 minutes after the test dose of morphine was recorded. MDA and TAC were also assayed through blood serum. Statistical analyses were carried out using one-way analysis of variance (ANOVA) and Tukey post-test, where differences with p values less than 0.05 were intended significant. **Results:** Vitamin C could significantly attenuate the tolerance, with maximum analgesic effect against thermally induced pain at 15 and 60 min (p -values<0.05). However, no significant variation of MDA and TAC levels was remarked. **Conclusion:** Vitamin C could postpone morphine-induced tolerance due to possible mechanisms, N-Methyl-D-Aspartate (NMDA) receptor antagonism and glutamate release inhibition, respectively

کلمات کلیدی:

Pain;Morphine;Tolerance;Vitamin C;Citicoline;Mice

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