

عنوان مقاله:

The Effect of Intrahippocampal Injection of Insulin-like Growth Factor-1 on Morphine-Induced Amnesia in Wistar Rats

محل انتشار:

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خلاصه مقاله:

Background: Morphine is widely used as a painkiller in clinics, but causes several side effects such as hyperalgesia, depression and more notably amnesia. Here, we assumed that insulin-like Growth Factor-1 (IGF-1) as a peptide with widespread distribution of receptors in brain regions, especially hippocampus, might be capable to alleviate morphine-induced amnesia. Methods: Thirty one male Wistar rats were divided into four groups including: morphine+saline, saline+saline, Morphine+IGF-1 and Saline+IGF-1 groups. The animals were cannulated in hippocampus using stereotaxic apparatus. IGF-1 ($5 \mu\text{g}/1 \mu\text{L}/\text{rat}$) was intrahippocampally injected 30 minutes prior to morphine (10 mg/kg/i.p) injection, and then rats were trained in step-through passive avoidance task. First Latency time (FLT) to enter and total time spent (TTS) in dark were measured 1.5 and 24 hours later. Control group received the same volume of saline. Results: The results showed that injection of 10 mg/kg morphine, compared with saline, significantly decreased FLT ($p = 0.001$), but increased TTS ($p = 0.001$) 24 hours after the training. Whereas, administration of IGF-1 compared with morphine, significantly increased FLT ($p = 0.001$), but decreased TTS ($p = 0.001$) assessed 24 hours after the training. Conclusions: These findings indicate that administration of morphine disturbs passive avoidance learning and memory and injection of IGF-1, 30 minutes before morphine injection, prevents amnesia.

کلمات کلیدی:

Morphine, Hippocampus, Amnesia, IGF-1, Memory

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