



Research

Investigation of Interactions between Glucocorticoid and Opioid Receptors on Anxiety Modulation in Mice

Sepideh Amiri¹, Ashkan Divanbeigi ^{2*}

¹ Shefa Neuroscience Research Center, Khatam Alanbia Hospital, Tehran, Iran.

² Institute for Cognitive Sciences Studies (ICSS), Tehran, Iran.

Abstract

Recent studies have shown that glucocorticoids may have modulatory effect on anxiety reactions. This effect may occur with opioid system interference. According to that, the purpose of this research is to assess the effect of dexamethasone as glucocorticoid agonist and its interaction with opioidergic system on the anxiety modulatory effect in plus maze model in mice. Male white mice with medium weight 20-30 g were used in this study. Thirty minutes before test and also five minutes before assessment of anxiety, dexamethasone (0.5, 1 mg per kilogram, subcutaneous) and naloxan (0.5, 1 mg per kilogram, intraperitoneal) respectively used in test group. For control group mice, normal saline was injected intraperitoneally. Then before test, mice were put in a black wall box till their curiousness and movement activities are improved and afterwards at regular time intervals mice were transported to plus maze. The anxiety standard indicators include the time spent in the open and closed arms were recorded through observation. This study showed that the injection of dexamethasone alone at both doses significantly reduced levels of anxiety reactions ($P<0.001$). But in group with injection of both dexamethasone and naloxan these effects were not significant ($P>0.05$). Based on the above findings, it is likely that glucocorticoids play a major role in reducing anxiety reactions. Moreover, these effects are likely to occur through the interaction with opioidergic system.

Keywords: Glucocorticoid Receptors, Opioid Receptors, Anxiety, Mice.

***Corresponding Author:** Ashkan Divanbeigi

E-mail: ashkan1359@gmail.com