P5.01.

Interaction of the neuropeptide PACAP with the opiate system

Szakács, J.[1]; Mácsai, M.[1]; Babits, A.[1]; Csabafi, K.[1]; Tóth, G.[2]; Szabó, G.[1]

1: Department of Pathophysiology Faculty of Medicine, Szeged, Hungary
2: Department of Medical Chemistry, Faculty of Medicine, Szeged, Hungary

Introduction: Pituitary adenylate cyclase-activating polypeptide (PACAP), a 38-amino acid peptide, is widely distributed in the brain and peripheral organs, and controls a wide variety of processes in the CNS as well as cardiovascular, pulmonary, gastrointestinal, reproductive, and immune systems.Materials and methods: In this study, we used CFLP mice to evaluate the effect of i.c.v. PACAP administration (250 ng or 500 ng/2µl) on locomotion and behavioral activity induced by subcutaneous (SC) injections of morphine (1 mg, 2 mg or 4 mg/kg bw). An elevated plus maze (EPM) and a Conducta System was used for studying the anxiogenic or anxyolitic effect in mice, and the locomotor activity (the distance traveled in cm, jumping and rearing) respectively. Results and conclusions: In accordance with literature data, low doses of morphine enhanced, but low doses of PACAP did not influence the basal locomotor activity. The jumping and rearing activity of the animals were depressed by the treatment with morphine as well as by the higher doses of PACAP. High doses of PACAP suppressed basal as well as morphine stimulated motor activity. No significant anxiolytic effect was observed following the acute injection of morphine, but PACAP in combination with morphine induced an increase in both EPM open-arm time and % open-arm entries.The PACAP-induced mechanisms involved in acute and chronic morphine actions require further investigations.

This work was supported by grants ETT 355-08/2009 and TÁMOP 4.2.1B