

ADENOSINE TRIPHOSPHATE BLOCKS OPIATE WITHDRAWAL SYMPTOMS IN RATS AND MICE

ADEL A. GOMAA*
S.A. MOUSTAFA*
A.A. FARGHALI*

The effect of adenosine triphosphate (ATP) on the expression of opiate withdrawal was examined using a chronic model of morphine-dependence. ATP was studied for its ability to modify or block jumping in morphine abstinent mice. In mice administered 2 mg/kg ATP intravenously, the naloxone ED₅₀ for withdrawal jumping increased by 11-fold in comparison to saline-treated mice. Naloxone-precipitated morphine-withdrawal in the rats, has been shown to induce a specific pattern of intestinal hyper myoelectric activity and to increase the arterial blood pressure. Administration of ATP at dose of 1 and 2 mg/g i.v. inhibited the induction of hyper myoelectric activ-

ity pattern in 80 and 100% of animals tested respectively. ATP also blocked the increase in mean arterial blood pressure seen during withdrawal in a dose-dependent fashion. Investigations were carried out to determine if blocking alpha-2 adrenoreceptors with yohimbine would result in an alteration in anti withdrawal action of ATP. Yohimbine reversed the effect of ATP in blocking naloxone-precipitated withdrawal on the myoelectric activity of jejunum and colon, however, it failed to antagonize the effect of ATP on withdrawal jumping and to block the effect of ATP on the pressor response produced by naloxone in morphine-dependent animals.

*From the Department of Pharmacology, Anaesthesia and Surgery, Faculty of Medicine, Assiut University, Assiut, Egypt.