

Melatonin is a mammalian hormone that has a great variety of effects. At present there is evidence that this hormone considerably reduces the manifestations of many gastrointestinal inflammatory diseases. The biological effects of melatonin are realized through the receptors located on the membranes of different animal cells. Three types of melatonin receptors are now known; of them two (MT1 and MT2) receptors were detected in mammals. Varying clinical forms of gastrointestinal diseases may be pathogenetically caused by the quality and amount of MT1 and MT2 receptors, their ratio, and endogenous melatonin activation. The purpose of this study was to develop a procedure for measuring the human blood cell levels of MT1 and MT2 receptors. For this, specific antibodies to MT1 and MT2 receptors were experimentally obtained; then indirect immunofluorescence was used to determine the content and ratio of blood mononuclear cells having these receptors onto the surface in 23 volunteers. The findings are an initial stage of this study and provide considerable opportunity to study a role of melatonin and its receptors in the pathogenesis of many diseases of the human digestive system.

Melatonin is a hormone primarily synthesized by the pineal gland and has been shown to govern seasonal and circadian rhythms, as well as the immune system, certain behaviors, and responses to stress. Chronic exposure to stress is involved in the etiology of human depression, and depressed patients present changes in circadian and seasonal rhythms. This study investigated the effects of daily exogenous melatonin (1 and 10 mg/kg, p.o.) and imipramine (20 mg/kg, i.p.) on the changes in the coat state, grooming behavior and corticosterone levels induced by the unpredictable chronic mild stress model of depression in mice. As expected, the 5 weeks of unpredictable chronic mild stress schedule induced significant degradation of the coat state, decreased grooming and increased serum corticosterone levels. All of these unpredictable chronic mild stress-induced changes were counteracted by melatonin (P