



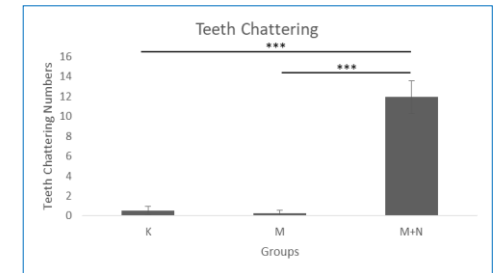
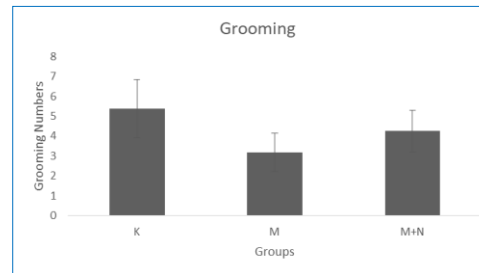
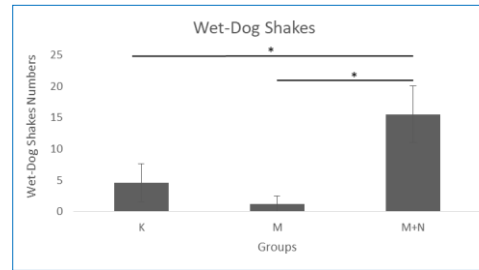
EFFECT OF NALOXONE PRECIPITATED MORPHINE WITHDRAWAL ON MELATONIN RECEPTOR EXPRESSIONS IN HIPPOCAMPUS AND HYPOTHALAMUS TISSUES IN MORPHINE DEPENDENT RATS

Yasin Ali Cimen¹, Canan Eroglu Gunes^{2,3}, Ibrahim Yildiz⁴, Faik Ozdengul^{2,4}, Ercan Kurar^{2,3}, Ismail Meral¹, Selim Kutlu^{2,4}

1) Bezmialem Vakif Un., Faculty of Medicine, Dept. of Physiology, İstanbul, 2) Necmettin Erbakan Un. Neuroscience Research and Application Center, Konya, 3) NEU, Meram Faculty of Medicine, Dept. of Medical Biology, Konya, 4) NEU, Meram Faculty of Medicine, Dept. of Physiology, Konya, Turkey

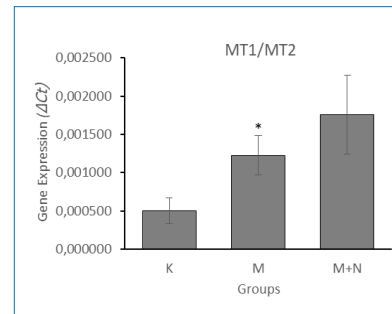
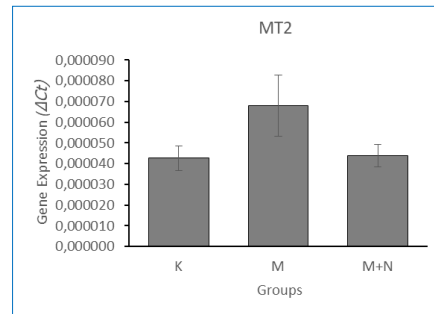
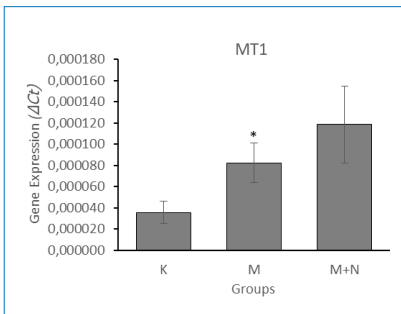
AIM: Melatonin exerts many physiological effects via two different G protein-coupled membrane receptors, MT1 and MT2. Additionally, recent studies also reveal MT1/MT2 heteromer formation of these receptors. The aim of this study was to investigate gene expression levels of these melatonin receptors in morphine dependence and morphine withdrawal condition in rat hippocampus and hypothalamus.

METHODS: Morphine sulphate was subcutaneously administered to adult male rat for 7 days at a dose of 10 mg/kg/day for morphine addiction model. Naloxone (1mg/kg) was injected to constitute morphine withdrawal condition to another group at 7th day of dependency. Naloxone induced morphine withdrawal symptoms were determined for 30 minutes and hippocampus and hypothalamus tissues were removed after decapitation of all rats. Melatonin receptors' gene expression levels were analysed by quantitative RT-PCR. One-way ANOVA was used for statistical evaluation.



Morphine withdrawal symptoms in all groups. * p<0.05 and *** p<0.001 compared to control and morphine dependent group by using One-Way ANOVA.

K: Control group, M: Morphine dependent group, M+N: Morphine dependent and naloxone treatment group.



Melatonin receptors' gene expression levels in hypothalamus. * p<0.05 compared to control by using One-Way ANOVA. K: Control group, M: Morphine dependent group, M+N: Morphine dependent and naloxone treatment group.

CONCLUSION: We specified naloxone-induced morphine withdrawal symptoms according to our results from the present study. Data also reveal that membrane receptors of melatonin may be involved in some pathophysiological processes in hypothalamic functions in morphine dependence and withdrawal situation.