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The effect of very low frequency electromagnetic waves on the formalin-induced pain in male rats

Elham Yousef Haghi[1], Shiva Khezri[1], Saeed Nafisi[2]

1. Department of Biology, Faculty of Science, Urmia University, Urmia, Iran
2. Department of Basic Science, Faculty of Veterinary Medicine, Urmia University, Urmia, Iran

Background and purpose: Two-phase square waves can affect the receptors to release all types of neurotransmitters such as; dopamine, serotonin, histamine, and so on. Serotonin acts on the pain receptors and opiate system, causing analgesia. Pain is a prevailing problem so that the existing homeopathic remedies are not usually useful. On the other hand, the use of drugs has its own side effects. The aim of this project was to evaluate the effect of low frequency electromagnetic waves on the formalin-induced pain in male rats.
Materials and Methods: 12 male Wistar rats were divided into two groups. The first group was free of irradiation and the second group was subjected to a frequency of 20 Hz for 60 minutes. 20 µl Formalin 5% was injected under the skin of the left foot. The response to formalin effects was recorded in 5 min intervals from 0-5 min (as early phase) and 15-30 min (as late phase). Data were analyzed using one-way ANOVA and post hoc Tukey test.
Results: The results of this study showed that low frequency electromagnetic waves significantly reduced the pain caused by formalin injection. Reduction of symptoms and decreasing in the duration of the time spent licking in the acute and chronic phase was observed in rats exposed to electromagnetic radiation at a frequency of 20 Hz ($P<0.05$).
Conclusion: Low-frequency electromagnetic waves are effective in pain reduction and can be used to relieve pain.
Keywords: Pain, Low frequency electromagnetic waves, Formalin test, Rat

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The effect of repeated ICV injections on brain inflammation and anxiety

Yousefvand SH[1], Hamidi F[1*], Zendehdel M[2], Parham A[1], Hashemzadeh M[2]

1. Department of Physiology, Department of Basic Sciences, Faculty of Veterinary Medicine, Ferdowsi University of Mashhad, Mashhad, Iran
2. Department of Physiology, Department of Basic Sciences, Faculty of Veterinary Medicine, University of Tehran, Tehran, Iran

Background and Objectives: Due to the increasing development of the poultry industry, having enough information about how to centrally regulate appetite in birds is important. Investigating the mechanisms involved in the central control of appetite in birds is done by ICV injection of biological compounds. In ICV injection in birds, it has been mentioned that only one experiment (one injection) should be done on each bird. This study examines this subject.
Materials & Methods: The present study was performed on 24 male Ross 308 broiler chickens. Stereotaxic surgery was performed on all of the animals. After 5 days of recovery, birds every day for a week received ICV injection, and their behavioral changes were examined.
Results: No behavioral changes were observed in the first and second days of the experiment. From the third day onwards, the birds show a degree of anxiety, and in the following days these symptoms were more severe and eventually led to the animal death. Repetitive ICV injections may cause inflammation of the brain tissue, and resulting in anxiety symptoms in the animal. Do next ICV injection by intensifying these symptoms, can cause the death of the animal.
Conclusion: Repeated ICV injections can cause brain inflammation and anxiety in the animal. Therefore, on every chick just has one experiment (injection) be done.
Keywords: Bird, Appetite, ICV injection, inflammation, anxiety.