

# The effect of Curcumin on consolidation and retrieval memory following unilateral Labyrinthectomy

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## Abstract

**Objectives:** Nowadays, vestibular system disorders are common. The aim of this study was to evaluate the effect of curcumin on Vestibular compensation (VC) and behavioral changes following unilateral labyrinthectomy in male rats.

**Methods:** Forty adult male Wistar rats were randomly divided into 5 groups: control; without labyrinthectomy and injection of curcumin with passive avoidance learning and memory retrieval testing in 3, 6 and 10 days after learning, group 2; labyrinthectomy with passive avoidance learning and memory retrieval testing, group 3; labyrinthectomy with passive avoidance learning and injection of curcumin then memory retrieval testing, group 4; passive avoidance learning, labyrinthectomy and memory retrieval testing and group 5; passive avoidance learning, labyrinthectomy with injection of curcumin and memory retrieval testing. The rats were anesthetized at the end of behavior experiment. The brain tissue was removed and brain stem was taken for morphological assessment.

**Outcomes:** The results of this study showed that labyrinthectomy significantly reduced the latency of entering the dark section of the shuttle box compared to the other groups on the 6th and 10th day learning ( $P < 0.05$ ). In the curcumin groups with labyrinthectomy (groups 3 and 5), learning which was performed before and after labyrinthectomy, the latency of the entrance to the dark section was decreased but not significant in comparison to the control group ( $P > 0.05$ ). In group 4, after learning and then labyrinthectomy, the latency of the entering the dark section was decreased but not significant in comparison to the control group ( $P > 0.05$ ). In the morphological assessment, in the labyrinthectomy group, the increase of supportive cells in the brain stem and hippocampus was observed in comparison with the control group and also deformation and decrease of neurons in the brain stem was observed, but it was not significant change in curcumin group compared to the control group.

**Conclusion:** Unilateral labyrinthectomy caused behavioral disorders and also tissue changes of brain stem on labyrinthectomy side. curcumin had a protective effect on the nervous system maybe by neurotropic, antiinflammatory and anti-apoptotic properties.

## Biography:

Naser Khalaji has PhD in Neurophysiology from Orbeli Institute of Neurophysiology, National Academy of Sciences of the Republic of Armenia, Yerevan, Republic of Armenia. He is an Associate Professor of Urmia University of Medical Sciences and Researcher. His field of research is vestibular compensation, electrophysiology and behavioral disorders following unilateral labyrinthectomy and also, he has been teaching Neuroscience for medical students at Urmia University of Medical Sciences since ten years.

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