

Does Low-Level Laser have any Effects on Healing of Temporomandibular Joint Osteoarthritis in Rats?

Ramin Rahati ¹, Ali Peimani ²

1. Student, Rafsanjan University of Medical Sciences, Faculty of Dentistry, Rafsanjan, Iran.

2. Assistant Professor, Department of Oral Surgery, Dental School of Rafsanjan University, Rafsanjan, Iran.

Corresponding Author: Ramin Rahati, E-mail: ramin.rahati@yahoo.com

ABSTRACT

Background: 20-30% Of adult population have experiences of temporomandibular joint disorder. It seems that referral persistent pain is the most important cause in treatment of 90% of patients. Common therapeutic methods to reduce pain and disfunction of TMJ are: drugs, occlusal appliances, physical therapy and stress control. studies have shown that using laser can increase the healing process and reduce inflammation. some studies state the advantages of laser therapy on reducing the inflammation of tmporomandibular joint. and doing these experiments are different and most of them lack sufficient information about the physical parameters which are used. The aim of this research is to investigate the low power laser usage in healing of osteoarthritis of rat TMJ.

Material and Methods: The experimental study was conducted on 32 rats. They were divided into 4 groups of two experimental groups and 2 control groups. Number 1 and 3 groups were control, and number 2 and 4 were experimental groups. After general anaesthetizing, chronic experimental inflammation was induced by injection of Complect Freund's Adjuvant (CFA) into TMJ of all 4 groups. One day after, The right TMJ joint of number two experimental group after general anaesthetizing, were treated with Helium- Neon Laser for 3 days. And right TMJ of number 4 experimental group was treated with Helium- Neon Laser for 7 days. On the third day of the inflammatory and proliferation phase, number 1 and 2 groups, and on the seventh day of the restructuring phase and time of closing wound, number 2 and 4 groups were sacrificed and They were surveyed by pathologist. Results of statistical Fisher's exact test was analyzed.

Results: The 3 days laser therapy, there was no significance difference in angiogenesis, quantity grade of cartilage, the number of cell layer, the number of inflammatory cells, and arthritis. But 7 days after the laser therapy, arthritis, the number of inflammatory cells, inflammatory of cartilage was reduced. and the number of cell layer, quantity grade of cartilage and angiogenesis was

Gharazi Hall, Milad Hospital, Tehran, Iran

significantly increased. ($p < 0/05$)

Conclusion: Using helium – Neon power output 100 (mw) laser significantly can reduce Osteoarthritis of rat TMJ.

Keywords: Low Level Laser, Temporomandibular Joint, Osteoarthritis, Rat