Clinical Trial Am J Dent. 2018 Oct;31(5):267-271.

Effectiveness of low-level diode laser therapy on pain during cavity preparation on permanent teeth

Felice Femiano [1], Rossella Femiano [2], Luigi Femiano [3], Giuliano Aresu [4], Vicenzo Maria Festa [2], Rosario Rullo [5], Letizia Perillo [6]

Affiliations
PMID: 30346674

Abstract

Purpose: To evaluate the effectiveness of low-level laser therapy (LLLT) on dental pain felt during cavity preparation of carious lesions in permanent teeth of adults.

Methods: The study was carried out on 88 teeth with dental caries requiring class I restorations in 24 subjects with a pain score ≥ 7 but < 10 measured using a 0-10 visual analogue scale (VAS) in a preliminary test of pain threshold (PTPT) for each subject receiving a class I cavity preparation on another tooth without local anesthesia. The 88 teeth included were randomly allocated to test and control groups, each with 44 teeth. All teeth were treated with LLLT prior to the mechanical preparation of the cavity without local anesthesia, except that the laser device was kept in idle mode in the control group. After cavity preparation, subjects scored pain intensity using the VAS. The Wilcoxon test was used to analyze data and the values with $P< 0.05$ were considered significant.

Results: All subjects scored a pain reduction in the test group compared with the control group ($P< 0.0001$), with a reduction of 42% and 16%, respectively, compared to pain felt during the PTPT. The use of LLLT prior to mechanical preparation of a cavity by lowering pain intensity might reduce the quantity of drugs used for pain control required during restorative procedures.

Clinical significance: Dental treatments could be more comfortable by using a preliminary phase of low-power lasers, limiting or eliminating pharmacological agents for pain control.

Related information

MedGen

LinkOut - more resources

Medical

MedlinePlus Health Information

Research Materials

NCI CPTC Antibody Characterization Program