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Morphological changes in oral mucosa of rabbits induced by light emitting diode (LED) used as dental curing light

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A dental curing light is a piece of dental tool that is used for the hardening of light cure composites. Many studies have shown these lights induce changes in DNA, mitosis and mitochondria through free radicals production. Light emitting diode (LED) are most commonly used and claim less hazards to the adjacent soft tissues.

Current study was done to observe the morphological changes in oral mucosa of 50 rabbits induced by LED light source. Animals were divided into 5 groups (1 control and 4 experimental groups). Cervical margin of central incisors was exposed 3 times with light for 40 seconds with a gap of 30 seconds. Specimens were taken 24hr, 48hr, 1week and 2week from group1, 2, 3 and 4 respectively.

Results showed ulceration (4%), acanthosis and vascular pathological changes (100%), enlarge (bulbous) rete ridges (97. 5%), basal layer vacuolization (85%), acantholysis (27. 5%) and atypical mitosis (10%) in all the experimental animals. With passage of time, a significant increase (P=0. 000) in frequency of basal cell hyperplasia (90% in group1 to 100% in group4) and basal layer atypia (70% in group1 to 90% in group4) was observed. While inflammation dropped from 100% in group1 to 0% in group4 (P=0. 000) due to healing of tissues. Changes were similar to the previous studies except some severe effects like atypical mitosis and basal layer atypia were observed which may be attributed to increase in number of light exposures in our study that is in compliance with the clinical practice in our set up.

These findings may help in creating awareness among the dental practitioners to use dental curing lights with caution keeping appropriate safety measures for the adjacent oral soft tissue in consideration.

Biography

Abdul Khaliq is a postgraduate student of M Phil in Oral Pathology at University of Health Sciences Lahore, Pakistan and has completed his research titled ''Morphological Changes in Oral Mucosa of Rabbits Induced by Light Emitting Diode (LED) used as a Dental Curing Light". Earlier, he acquired his Bachelors in Dental Surgery in 2007. He also worked for 4 years as a dental surgeon at a public sector THQ Hospital, Bahawalpur Pakistan.

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