O21

Clinical evaluation of in-office tooth whitening : Effect of light and ultrasonic

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I. Introduction

Tooth whitening has become one of the most popular dental treatments available. Bleaching has generally required application of H_2O_2, whether performed in-office or at home. To reduce treatment time, clinicians have tried to catalyze or speed the H_2O_2 decomposition. Heat and light have been used empirically. Many current systems ,which use light activation in conjunction with H_2O_2, advertise quick and dramatic results. However, the literature evidence for the efficacy of these additional devices is limited and controversial.

The purposes of this presentation were (1) to clinically evaluate the different whitening systems in a single visit and (2) to determine if use of the lights and the ultrasonic device enhanced tooth lightening. Split-arch design using centrals, laterals, and canines on one side treated with bleaching agents with light or ultrasonic device, were compared with contralateral teeth using bleaching agents alone. The degree of color change was evaluated by using a colorimeter (ShadeVision®, X-rite, USA).

II. Case Presentation

1. Sex/age: Six participants/age range from 23 to 27 years
2. Chief Complaint (C.C): wants light teeth
3. Past Dental History (PDH): all six anterior teeth should not have the labial surface restoration
4. Present Illness (P.I): N/S
5. Impression: N/S
6. Tx Plan: In-office tooth whitening using splint-arch design

   At three days after the initial appointment, color changes were evaluated using ShadeVision®.

III. Conclusion

This clinical trial shows that light and ultrasonic do not increase the efficacy of tooth whitening. The question as to whether to use additional activation during chair-side bleaching and the purported benefits are still issues of debate. Light-activated whitening systems offer a marketing opportunity and may have some effect with specific bleaching agent. However these devices add cost, occupy operatory space, can cause burning of the soft tissue, and can increase operatory temperature. The key factors that affect tooth whitening efficacy by peroxide containing products are contact time and concentration of active ingredients. The efficacy of additional devices to accelerate tooth whitening should be carefully considered. Further work and more independent research are required.