TOOTH DISCOLORATION BY 3MIX-MP AS INTRACANAL MEDICATION

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ABSTRACT

The aims of this study were to investigate the effects of 3Mix-MP as an intracanal medicament on the discoloration of teeth and to examine the different methods of placement of 3Mix-MP by lentulo spiral and MTA gun with and without bonding agent in order to prevent or reduce the discoloration effect. Finally, to examine the efficacy of bleaching agents on 3Mix-MP stained teeth.

Part1: Twenty extracted permanent maxillary central and lateral incisors were prepared. Ten teeth were used as control. On the other ten teeth, 3Mix-MP was used as intra canal medication. Teeth from each group were immersed in normal saline in dark individual containers, and placed in an incubator at 37 ˚C with 95% humidity for 22 days. Tooth color was measured from day 1 to day 5, day 8, day 15, and day 22. Part 2: Fifty extracted permanent maxillary central and lateral incisors were prepared. Ten teeth were used as control. For each 20 teeth, lentulo spiral and MTA gun was used to place the medication. Then each method was sub-divided into two groups. The root portion of ten teeth were placed with 3Mix-MP without dentin bonding coated in the pulp chamber and the root portion of the other ten teeth with 3Mix-MP were placed with dentin bonding coated in the pulp chamber. Teeth from each group were stored the same as in part one for 21 days. Tooth color was measured at day 1, day 7, day 14, and day 21. Part 3: 22 extracted permanent maxillary central and lateral incisors which were stained by 3Mix-MP were used in this part. Two teeth were used as the control group. Ten teeth were treated with sodium perborate mixed with 30% hydrogen peroxide and another ten teeth were treated with opalescence endo. Teeth of each group were stored the same as in part one for 21 days. Tooth color was measured at day 7, day 14, and day 21.

The results of part 1, in terms of L, a, and b color spaces, indicate the samples that were filled with 3Mix-MP had negative ΔL^*, Δa^*, and Δb^* values both at the cervical and middle parts, which means teeth became darker, greenish, and blueish and the color change was significantly different ($P<.05$) over a period of 22 days. The ΔE^* value was greater than two in the first day at the cervical part and on the second day at the middle part and the values increased significantly ($P<.05$) over a period of 22 days. For Part 2, the statistical analysis found that only dentine bonding affected the ΔL^*, Δa^*, and Δb^* values, while for the ΔE^* value, dentine bonding and method of placement by MTA gun affected the color difference significantly ($P<.05$). Regarding Part 3, teeth with both sodium perborate and opalescence endo had the positive ΔL^* and Δa^* values for both the cervical and middle parts, which means teeth became white and less green, while the Δb^* value had a negative value, which means teeth became blue after bleaching was finished and the change of ΔL^* value was significantly different ($P<.05$). The ΔE^* values at days 7, 14, and 21 after bleaching increased significantly ($P<.05$) and the values increased to the same level as pre-stained on day 14 for both sodium perborate and opalescence endo groups.

In conclusion, 3Mix-MP could stain teeth dark-green. The discoloration could be detected since the first day after introducing the medication and the discoloration became darker over the period of study. Dentine bonding and method of placement by MTA gun could reduce the overall color change but did not prevent it. Sodium perborate mixed with 30% hydrogen peroxide and opalescence endo could restore tooth color and the bleaching procedure can be done in 14 days for acceptable results.

KEY WORDS: DISCOLORATION / INTRACANAL / MEDICATION / TOOTH

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