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Effect of Various Bleaching Agents on Discolored Nonvital Teeth.

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This study was performed to evaluate internal bleaching effect of various bleaching agent on discolored nonvital teeth. 40 Human teeth were intentionally discolored with erythrocytes of human blood and randomly divided into 4 groups: 10% carbamide peroxide gel (Opalescence, Ultradent, U.S.A.); 15% carbamide peroxide gel; sodium perborate (Duksan pure chemical Co., Korea) with distilled water; sodium perborate with 30% hydrogen peroxide (Duksan pure chemical Co., Korea). The bleaching agents were replenished following 3, 6, 9 and 12 days. To compare bleaching effect, the color change of the crowns was measured at 1 day, 2 days, 3 days, 4 days, 7 days and 15 days using the colorimeter(color & color difference meter, model TC-6FX, Tokyo, Japan). L value was increased with time at all bleaching agents. ($p<0.01$), but there is no significant difference in L value among bleaching agents. (Eab value more than 3 was revealed at 3 days of bleach with 10% carbamide peroxide gel, at 1 day of bleach with 15% carbamide peroxide gel and at 4 days of bleach with sodium perborate with distilled water and sodium perborate with 30% hydrogen peroxide, respectively.

Data was analyzed using repeated measure ANOVA to examine significant difference of bleaching agents with time. The results indicated that 10% and 15% carbamide peroxide bleaching gel in nonvital teeth bleach is as effective as sodium perborate with distilled water and sodium perborate with 30% hydrogen peroxide. Accordingly, carbamide peroxide could be applied clinically to bleach discolored novital teeth.

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Dentin permeability change according to the process of compomer restoration treatment

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Microleakage of restorative materials has been investigated mostly by dye penetration method. Dye penetration method was not quantitative and not measured repeatedly. Fluid filtration method was used to research purpose to understand the effects of various restorative treatments on dentin permeability. The purpose of this study was to evaluate of dentin permeability according to the process of compomer restoration treatment.

In this study, Cl Ⅴ cavities were prepared on buccal surface of thirty extracted human molars. The prepared cavities were etched by 37% phosphoric acid. The experimental teeth were randomly divided into three groups. Each group were treated with following materials; Group 1 : Prime & Bond NT/Dyract AP, Group2 : Single Bond/F2000 compomer, Group 3 : Syntac Single Component/Compoglass. The bonding agent and compomer were applied for each group following manufacturer's information. Dentin permeability of each group were measured at each processes by fluid filtration method; after preparation(smear layer), after etching(smear layer removal), after applying the bonding agent, after filling the compomer. Dentin permeability were expressed by hydraulic conductance.

The data were analysed statistically using One-way ANOVA and Sheffe's method.

The results were as follows :

1. Dentin permeability difference between each process were significant except between bonding agent sterp and filling step($p< 0.01$).
2. Dentin permeability were highly increased by removal of smear layer($p<0.01$).
3. Most dentin permeability decreases were decreased by applying bonding agent($p<0.01$).
4. Dentin permeability difference between all groups were non-significant at each process($p>0.05$).
5. All compomer used this study showed microleakage.