

## Rewetting effect of water-based primer on the air-dried dentin

Ki-Young Kim, Bock Hur, Hee-Joo Lee

*Department of Conservative dentistry, College of Dentistry, Pusan National University*

### I. Objectives

The purpose of this study was to evaluate the rewetting effect of water-based primer on the air-dried dentin.

### II. Materials and Methods

Freshly extracted non-carious human molars and three-step adhesive system (SBMP) were used. Flat occlusal dentin surface were prepared using low-speed diamond saw. Prepared teeth were randomly divided into three groups. Group 1.(W): etched (35% phosphoric acid for 15s) and blot-dried, Group 2.(5D): 5s air-dried, Group 3.(30D): 30s air-dried. To obtain color contrast in CLSM observation, primer was mixed with rhodamine B and bonding resin was mixed with fluorescein. Microscopic sample of each group were obtained after longitudinal section. Morphological investigation of resin-dentin interface and thickness of hybrid layer measurement using CLSM were done. Microtensile bond strength for each specimen was measured. Specimen were observed under microscope to examine the failure patterns of interface between resin and dentin.

### III. Results

1. The results (mean) of Thickness of hybrid layer were W:19.67, 5D:20.9, 30D:10 $\mu$ m. Only 30D had statistically significant differences to W and 5D (P<0.05).
2. The results (mean) of Microtensile bond strength were W:16.02, 5D:14.69, 30D:11.14 MPa. Only 30D had statistically significant differences to W and 5D (P<0.05).
3. There were positive correlation between Thickness of hybrid layer and microtensile bond strength (P<0.05).

### IV. Conclusions

Water-based primer allows to re-hydrate and re-expand the gently air-dried and collapsed collagen network.