Title: Effect of mums solution (Mashhad University of Medical Sciences) conditioning prior to application of two adhesive systems on the shear bond strength of resin composite to dentin

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Abstract: Objective: To investigate the effect of mums solution (surfactant0.5%, EDTA0.5%, HLD7%) conditioning prior to the application of two adhesive systems on the shear bond strength (SBS) of resin composite to dentin.

20 extracted caries-free human third molars were cut in two equal mesial and distal halves. The crowns were transversally sectioned with a thin saw just below the DEJ and were divided into 4 groups of 10 halves: 1-mums treatment, I Bond (IBondM). 2-water treatment, I Bond (IBondW), 3-mums treatment, ClearfilSE Bond, (SEBondM), 4-water treatment, ClearfilSE Bond,(SEBondW). Flat dentin surfaces were abraded with a commercial high-speed cylindrical diamond bur while rinsing with mums (group 1&3) or tap water (group 2&4). A poly-ethylene cylinder (2*2mm) was filled with a hybrid composite and bonded to the dentin and cured for 40". At 24h storage in humid, 37C incubator, all teeth were thermo-cycled 600 times (5-55C, dwell time 30sec). SBS testing was conducted using an Instron mashin. Mode of failure were examined with digital enhanced stereomicroscope.

Results: Mean SBS in all groups in MPa was as follow; IBondM=11.52±4.30, IBondW=11.25±4.17, SEBondM=6.68±2.38, SEBondW=12.42±6.13. Mean SBS in SEBondM was significantly lower than SEBondW (p=0.013), there was no significant difference between groups IBondM and IBondW (p=0.886). Observing mode of failure showed an adhesive failure in all cases.

Conclusion: When used tap water, mean SBS between groups SEBondW and IBondW was not statistically different, however, when ClearfilSEBond was used, irrigation by mums solution lowered bond strength compared with water. This effect was not observed in usage of IBond.

Presentation: Poster