OP27 EFFICACY OF INFILTRATION TREATMENT ON POST-ORTHODONTIC WHITE SPOT LESIONS WITH VARYING SEVERITIES: A QUANTITATIVE LIGHT-INDUCED FLUORESCENCE STUDY

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AIM: To evaluate the efficacy of low-viscosity resin infiltration in the treatment of post-orthodontic white spot lesions (WSL) with varying lesion severities assessed by quantitative light-induced fluorescence (QLF).

MATERIALS AND METHOD: Clinically diagnosed post-orthodontic WSL (n = 57) comprised the study material. Images of all lesions were obtained in a light-proof room under saliva isolation by a single operator using a QLF device (Inspektor-Pro, version 2.0.0.48, Netherlands) prior to any treatment. Images were processed with the corresponding software producing the fluorescence loss (ΔF1) and lesion area (Δarea1) values. Lesions were treated with low-viscosity resin infiltrant (Icon, DMG, Hamburg, Germany) according to the manufacturers' instructions. QLF imaging was repeated (ΔF2 and Δarea2) from the same perspective using the software of the device. Kolmogorov-Smirnov and independent samples tests were used for data evaluation.

RESULTS: Lesions were grouped as follows: (1) incipient ($5<\Delta F<10$, n = 14); (2) advanced ($10<\Delta F<25$, n = 43). ΔF1 and ΔF2 values of incipient lesions were 8.48 ± 0.73 and 6.86 ± 0.88, respectively. Δarea1 and Δarea2 values of incipient lesions were 5.59 ± 5.19 and 0.28 ± 0.33, respectively. In incipient lesions, both ΔF1-ΔF2 and Δarea1-Δarea2 reduced significantly ($P < 0.001$, $P = 0.002$). ΔF1 and ΔF2 values of advanced lesions were 15.48 ± 5.32 and 8.65 ± 2.7, respectively. Δarea1 and Δarea2 values of advanced lesions were 5.81 ± 5.56 and 1.31 ± 1.86, respectively. In advanced lesions, both ΔF1-ΔF2 and Δarea1-Δarea2 presented significant decreases ($P < 0.001$). When ΔF1-ΔF2 and Δarea1-Δarea2 decreases of incipient and advanced lesions were compared, the decrease in ΔF was higher for advanced lesions ($P < 0.001$) whereas the decrease in lesion area was similar ($P = 0.588$).

CONCLUSIONS: Treatment of post-orthodontic WSL using low-viscosity resin infiltration significantly reduces the loss of fluorescence and lesion area regardless of lesion severity. However, in advanced lesions, the loss of fluorescence was improved more effectively.