

OP52 CHANGES IN WHITE-SPOT LESIONS FOLLOWING POST-ORTHODONTIC WEEKLY APPLICATION OF 1.25 PER CENT FLUORIDE GEL OVER 6 MONTHS – A RANDOMIZED CONTROLLED TRIAL

Laura Seibold¹, Niko Bock², Christian Heumann³, Sabine Ruf², ¹Private Practice, Hadamar, ²Department of Orthodontics, University of Giessen and ³Department of Statistics, University of Munich, Germany

AIMS: *In vivo* monitoring of white-spot lesion (WSL) changes and dental status in response to weekly 1.25 per cent fluoride gel application after multibracket appliance treatment (Tx).

SUBJECTS AND METHOD: In this randomized, single-centre, double-blind, parallel-group, placebo-controlled study conducted in compliance with good clinical practice and the Declaration of Helsinki, patients with ≥ 1 WSL (modified score 1 or 2; Gorelick *et al.*, 1982) on ≥ 1 of the four upper front teeth (UFT) after debonding of multibracket appliances were randomly assigned to a test or placebo group. The participants attended six appointments (T0-T5) over 6 months. At T0 (baseline) to T2 (2 weeks after debonding), professional gel (1.25% fluoride or placebo) application was performed. Thereafter, the subjects continued gel application at home for 22 weeks. For WSL assessment, photographs of the UFT were taken using a standardized imaging technique at each appointment. In addition, saliva buffer capacity and stimulated salivary flow rate as well as WSL index, caries activity index, plaque index, gingival bleeding index and decayed, missing, and filled teeth were evaluated clinically.

RESULTS: While improvement of WSL luminance was seen in both groups (mean value teeth 12-22, fluoride group: 26.9%, placebo group: 23.2%) after 6 months, no statistically significant group difference was seen. The same was true for all other clinical parameters except stimulated salivary flow rate (fluoride group: 1.1 ml/minute, placebo group: 0.74 ml/minute; $P = 0.022$). Data suggest that the parameter WSL is difficult to measure with respect to reliability and repeatability and further improvement and validation of methods for monitoring WSL in clinical trials is required.

CONCLUSION: Based on the results of this study, no treatment difference could be detected in respect of the outcome of WSL by post-orthodontic high-dose fluoride treatment.

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