

NCC 'FUTURE GENERATION 2024' POSTER Abstracts
SCIENTIFIC SESSION IN COOPERATION WITH THE BCLA

NCC 'Future generation 2024'

Organization Section: NCC/ BCLA

POSTER Abstracts

Monday, March 11, 2024

Netherlands, Veldhoven,

NH De Koningshof, Baroniezaal

12-months + 1: Adverse events and ocular surface evaluation with invasive and non-invasive method in orthokeratology (OK) wearers.

Laura Batres, Juan Gonzalo Carracedo,

Julia Bodas

Purpose: Examine adverse effects during 12 months of orthokeratology, including reasons for the cessation and changes in the ocular surface after a 1-month without lens.

Method: A prospective, blind, randomized, and longitudinal study was design. Participants were fitted with spherical and toric orthokeratology lenses (Paflucocon D). Follow-up were conducted after 1-night, 1-week, 1, 3, 6, and 12-months, and after one-month of wash out. Tear breakup time (TBUT), Schirmer I test, Tear Film Surface Quality (TFSQ), and corneal staining were measured.

Results: : The study included 64 patients with 12 ± 2.53 years and spherical equivalent of -3.40 ± 1.70 D. Out of the 64 patients, 13 did not complete the 3-month visit due to issues related to handling the lenses (9/64), unsatisfactory vision within the 1-month (2/64), and failing to achieve a visual acuity of 0.8 or higher (2/64). No significant differences were found when comparing between lens designs for TBUT, TFSQ-Area(%), TFSQ-central, or corneal staining at different visits. However, a statistically significant difference was observed in the Schirmer at the 3-month visit ($p=0.037$). Comparing different visits, a significant gradual decrease in TBUT was observed with the toric design starting at the 3-

month ($p=0.003$). The TFSQ-central showed a statistically significant difference for the spherical design ($p=0.001$), as well as for TFSQ-Area(%) ($p=0.009$). Positive staining was more frequent in the central and lower corneal zones. Total staining grade increased from the 1-week, and by the end of the treatment, there was statistical significance for both designs ($p=0.006$). In terms of reversibility, no statistically significant differences were found in TFSQ, Schirmer, and corneal staining. However, TBUT showed differences, with a 4-point decrease observed in the toric design after discontinuing the lenses.

Conclusions: Changes induced by orthokeratology affect vision, tear quality and quantity. Optometrists should track and document clinical changes affecting eye health for treatment, referrals, and complication prevention.

Research funding received: