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Comparison of immediate effects on usage of dual polymer artificial tears on changes in tear film characteristics
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Abstract
Introduction: This study aimed to evaluate the short-term efficacy of two comparable formulation of dual-polymer artificial tears: Systane Hydration preservative (SH) and non-preservative (SHUD) in 60 minutes observation period compared to normal saline. Methods: Fifty participants involved in this prospective, double-masked randomised study. Viscosity and pH of artificial tears were evaluated using rheometer and digital pH-meter prior to tear film assessment. Tear break-up time (TBUT) and tear meniscus height (TMH) were measured at baseline, 5, 15 and 60 minutes after instillation. Tear ferning pattern (TFP) were compared between baseline and 60 minutes after instillation. One-way analysis of variance (ANOVA) and Independent T-test were used to evaluate the effects of SH and SHUD after instillation and comparison between each specific time-interval respectively. P-value of 0.05 was set as the level of significance. Results: The viscosity of SH and SHUD was 26.7cP and 32.73cP re-spectively with pH of 7.85 (SH) and 7.74 (SHUD). Both artificial tears showed significant increment in TBUT between baseline and 15 minutes (SH:5.82±1.063, p=0.01; SHUD:6.02±0.979, p<0.001), and 60 minutes (SH:6.22±0.616, p<0.001; SHUD:6.34±0.658, p<0.001). SHUD demonstrated significant increment in TMH at every measurement taken (0.1996±0.02449, p<0.001 at 5min, 0.2038±0.02276, p<0.001 at 15min and 0.2068±0.02094, p<0.001 at 60min). Likewise, in SH group, significant increment in TMH at 15 minutes (0.1994±0.02325, p<0.001) and 60 minutes (0.2012±0.02379, p<0.001) were noted. Both groups revealed improvement in TFP (both, p<0.001) at 60 minutes. No significant im-provement was noted in control group. Conclusion: Improvement in TMH was prominently faster in SHUD than SH, although both TBUT and TFP revealed comparable tears quality between both artificial tears.

Author Keywords
Artificial tears; Systane Hydration; Tear film quality; Tear film quantity

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