THE EFFECTS OF DIFFERENT PHYSICAL PROPERTIES OF ARTIFICIAL TEARS ON SUBJECTIVE OCULAR SENSATION

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ABSTRACT

Aims: To evaluate the effects of different physical properties of artificial tears (ATs) on subjective ocular sensation using Systane Hydration preservative (SH) and non-preservative (SHUD), Optive preservative (O) and non-preservative (OUD) in normal and suspected dry eye (SDE) group.

Methodology: 30 participants involved in this prospective, double-masked randomized study. Rheometer and digital pH-meter were used to evaluate the viscosity and pH of all ATs. Participants were divided into normal and suspected DE group based on Ocular Surface Disease Index (OSDI) score. Ora Calibra™ Ocular Discomfort and 4-Symptom Questionnaire (OOD4SQ) was used to evaluate ocular discomfort between pre- and post-instillation (after 60 minutes interval). Drop comfort immediately evaluated after instillation using Ora Calibra™ Drop Comfort Scale (ODCS). Drop comfort score (DCS) between all ATs were analysed using One-way analysis of variance (ANOVA), while ocular discomfort (OOD4SQ) was analysed using paired T-test. Level of significance was set at 0.05.

Results: Viscosity of ATs were SHUD: 32.73cP, SH: 26.7cP, OUD: 14.42cP and O: 13.88cP with pH of 7.74 (SHUD), 7.85 (SH), 7.19 (OUD) and 7.24 (O). Highest DCS was found in SHUD (2.07±1.792) for suspected DE group and SH (2.27±1.751) for normal group. Significant reduction in dryness ($p<0.05$) was found for all ATs in both groups except OUD. Significant reduction of overall discomfort was observed in suspected DE group after instillation of O and SHUD, while in normal group, O, OUD and SH significantly improved the overall discomfort after 60 minutes instillation.

Conclusion: Optive showed better ocular comfort and less subjective sensation compared to other tested ATs.

Keywords: artificial tears, ocular sensation, ocular discomfort