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Is there an association between lid wiper epitheliopathy, lens type and contact lens discomfort?

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PURPOSE: To assess the association between lid wiper epitheliopathy (LWE), subjective comfort, clinical signs and wear patterns in symptomatic and asymptomatic soft, rigid and non-contact lens (CL) wearers.

METHODS: The Korb LWE grade for upper and lower lids was assessed in 70 habitual CL wearers and non-wearers (age 35+/-16, 82% females). Subjects were assigned to either symptomatic soft (sSCL), asymptomatic soft (aSCL) (based on the self-reported lens-related dryness scale), rigid gas permeable (RGP) or non-lens (NCL) group. Three self-administered questionnaires (OSDI, CLDEQ-8, diurnal 0-100 scales for dryness and discomfort) were used to determine subjective comfort levels. Correlation coefficients were used to determine the relationship between LWE, comfort and various clinical measures for each group.

RESULTS: Mean LWE grades (+/-SE) were 0.4+/-0.1 (NCL), 0.8+/-0.2 (aSCL), 0.9+/-0.2 (sSCL), 1.5+/-0.2 (RGP). Upper and lower LWE grades were correlated ($p=0.0001$, $r=0.6$). RGP wearers exhibited more LWE than all other groups ($p=0.01$). The upper LWE score of sSCL correlated with the self-reported average daily wear time (hrs/day) ($p=0.03$, $r=0.5$) and the OSDI score ($p=0.001$, $r=0.7$). There was no difference between comfort scores of RGP and those of NCL or aSCL subjects ($p>0.05$), while sSCL subjects scored lower than all other groups ($p<0.01$). All comfort ratings correlated well with each other (mean $p=0.001$, $r=0.6$), but no association was found between LWE grade and any of the other comfort ratings, age, sex, pre-lens or pre-corneal BUT, lens age, type, material or cleaning solution, bulbar/limbal/palpebral hyperemia or conjunctival/corneal staining ($p>0.05$).

CONCLUSION: RGP lens wearers exhibit the most severe LWE grades, while reporting similar or better comfort than any other lens or non-lens wear group. For symptomatic soft lens wearers, a higher OSDI score and prolonged wear over the day appear linked to higher grades of LWE.