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Guest Editor:
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Silicone-hydrogel contact lenses – microbial colonisation and hydrophobicity

SANTOS L, R, LIRA M (2), REAL OLIVEIRA MECO (2), OLIVEIRA R (1), AZEREDOJO (1)
(1) Biological Engineering, Braga
(2) Center of Physics, Braga

Purpose To study the relation between microbial colonisation and hydrophobicity of different types of silicone-hydrogel contact lenses (CL).

Methods The CL used in these work were ‘Purevision’, ‘Focus Night & Day’, Acuvue ‘Advance’ with Hydraclear. It was also used a conventional disposable hydrogel ‘Acuvue’. The experiments were performed after the CL removal of patients from both sexes with mean ages of 22.1 ± 4.2 years. Every patient used a conventional disposable hydrogel during 15 days and a silicone-hydrogel CL during 1 month, one in each eye, in a daily wear schedule. The extent of microbial colonisation was evaluated by the determination of the colonies formatting units (CFU). The hydrophobicity was determined through contact angle measurement using the advancing type technique with Millipore water.

Results Microbial colonisation was significantly higher (p<0.05) on CL wear by certain patients, in particular the one using the conventional hydrogel CL. The hydrophobicity of the conventional hydrogel CL increases after wear. The high degree of colonisation found on CL with high contact angles (p<0.05), suggests that hydrophobic interactions may have played an important role in microbial adhesion.

Conclusion There is a change in the surface properties of the CL with wear, influencing the extent of microbial colonisation.