Inhibition of \textit{S. epidermidis} adhesion to hydrogel contact lenses by anionic and non-ionic surfactants

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In this study the adhesion of \textit{S. epidermidis} to the 4 FDA groups of hydrogel CL uncoated and coated with \(\frac{1}{2}\) CMC of an anionic (sodium cholate) and a non-ionic surfactant (octylglucoside) was assessed. The results revealed that cell adhesion to CL was highly dependent on surface hydrophobicity. Concerning the effect of surfactants, the non-ionic one was more effective in inhibiting microbial adhesion than the ionic surfactant. Octylglucoside promoted an inhibition in the extent of bacterial adhesion of about 62\%, while sodium cholate caused a decrease in the number of cells adhered of about 43\%. The effect of a commercial multipurpose care solution containing 1\% of poloxamine was compared and the results indicate that adhesion inhibition was greater when 0.33\% of octylglucoside was used. Octylglucoside is a natural surfactant, non-toxic, harmless to the eye, and due to its high efficiency in inhibiting microbial adhesion, as proved in this work, is recommended to be incorporated in CL care solutions.