Microbial adherence to cosmetic contact lenses

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Aim
To investigate whether surface pigments on cosmetic contact lenses (CCL) affects microbial adherence.

Method
Thirteen brands of CCL were purchased from retail outlets and via internet. Rub off tests (gentle rubbing of lens surfaces with wetted cotton buds (maximum 20 rubs)) were performed on these CCL to confirm location of pigments. A new set of CCL (5 lenses per brand) were incubated in P.aeruginosa overnight. Viable counts of adhered bacteria were determined by the number of colony-forming unit (CFU) on agar media on each lens. Brands A, B and C lenses were also compared with their clear counterparts (same material and water content but no pigments).

Results
Only two (Brands B and C) of 10 brands of CCL claiming sandwiched pigments did not have pigments that rubbed off easily. The remaining CCL all failed the rub-off test and these lenses showed higher P.aeruginosa adherence (8.7x10⁵ – 2.0x10⁶ CFU/lens). Adherence to Brand B and C lenses were at least seven times less. Compared to their clear counterparts, bacterial adherence on Brand B and C lenses was not significantly different, whereas Brand A lenses showed significantly higher adherence.

Conclusion
Surface pigments on CCL resulted in significantly higher bacterial adherence.