Blink Efficiency: A Neglected Area Of Ocular Surface Disease Management?

The report of the Dry Eye Workshop,1 the proceedings of the Ocular Surface Workshop,2 and the report of the International Workshop on Meibomian Gland (MG) Dysfunction3 have greatly contributed to the diagnosis and treatment of ocular surface disease. However, the potential role for improving blink rate and/or blink completeness in the treatment of dry eye conditions appears to be a significant omission from these reports. For example, the delivery of lipid secretion from MGs to the lid margin depends on the muscular action of the lids during blinking.4–6 The normal apposition of the lids during a complete blink promotes lipid secretion from the MGs.4–6,7 The lipid layer is spread across the cornea by the upper lid,3 and inefficient blinking, may be associated with poor maintenance of lipid layer integrity.5,8 For example, during prolonged reading, when blink rate and blink completeness are significantly reduced,8,9 the lipid layer can disappear and then reappear with conscious blinking.4 Apart from the potential to contribute to reduced lipid flow, incomplete blinking approximately doubles the interblink interval and increases the potential for increased tear layer loss by evaporation from the areas of conjunctiva and cornea which are exposed by an incomplete blink.8

Deliberate, forceful blinks promote secretion from unobstructed glands.4,5,9,10 However, deliberate forceful blinks give an unnatural appearance. Rather than depending on conscious forceful blinking episodes, it may be better to try to achieve longer lasting benefits from improved unconscious blink efficiency, which can be achieved with a normal appearance.8 A practice session of conscious normal looking complete blinks (say 24 blinks in 24 seconds),8 appears likely to achieve the immediate benefit of increased lipid flow and distribution. In addition, as improvement in frequency and completeness become more routinely sustained in unconscious blinking, the need for conscious blinking practice sessions appears likely to reduce to an occasional maintenance level.

Used in conjunction with other approaches to ocular surface disease treatment and, depending on the level of preexisting blink efficiency, there may be great potential for improved frequency and completeness of blinking to increase and maintain lipid secretion from all functioning glands. Conversely, given that evaporative dry eye is the most common form of tear deficiency,3 failure to consider the need to improve blink efficiency may significantly undermine efforts to improve MG function and tear function in general. It is possible that reduced poor lipid flow associated with inefficient blink-

References


Citation: Invest Ophthalmol Vis Sci. 2011;52:4484.
doi:10.1167/iovs.11-7751

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