Lifestyle & dry eye disease:

A complicated relationship

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On January 29, 2024, Morten Schjerven Magnø defended his thesis "Lifestyle and dry eye disease: an epidemiological perspective" at the Faculty of Medical Sciences at the University of Groningen (RUG) in the Netherlands. His PhD project resulted from work done at Oslo University Hospital (OUH). His main supervisors were Prof. Tor Paaske Utheim (OUH) and Prof. Nomdo Jansonius, University Medical Center Groningen (UMCG/RUG), with co-supervisor Dr. Jelle Vehof (UMCG/RUG).

Dry eye disease (DED) is a highly prevalent condition affecting around 10% of the adult population. The prevalence is further rapidly rising both due to an aging population and the increasing ubiquitousness of key risk factors, such as screen use. Common symptoms include ocular pain, burning, dry feeling, foreign body sensation, and blurred vision; and DED is one of the most common reasons for ophthalmic consultations in high-income countries. The condition places a large burden on those affected, starkly reducing quality of life. As a multifactorial condition caused by the interplay between several different factors, the risk of developing DED is affected by both internal vulnerabilities and external exposures. In this thesis, the link between DED and certain lifestyle factors, including sleep quality, diet, and sedentary behavior was explored using epidemiological data from the Dutch Lifelines Cohort of around 170,000 participants recruited from general population in the northern Netherlands. The Lifelines Cohort includes rich data on the health, disease, and genetics of the participants, and the large sample allowed for correction for a substantial number of comorbidities.

In Paper 1, we found that poor sleep quality is tied to far greater odds of having DED, with one-in-three people with DED suffering from impaired sleep quality. Of those with the highest symptom burden of DED, almost 50% had a poor sleep quality. Dietary lifestyle factors and their association with DED were explored in papers 2, 3, 4, and 5. In these, we investigated caffeine consumption (Paper 2), alcohol consumption (Paper 3), water intake (Paper 4), and a Mediterranean diet (Paper 5). In general, these dietary factors were not strongly correlated with the odds of having DED in our population. Despite there being a clear correlation between adherence to a Mediterranean diet and lower levels of inflammatory markers in the blood, there was no decreased odds of DED with greater adherence to a Mediterranean diet. In Paper 6, we observed greater odds of having DED among individuals with a more sedentary lifestyle, especially in conjunction with greater screen-use.

In conclusion, DED is a complex disorder, for which a holistic approach is necessary. Clinicians should be aware of the high burden of disease that many patients experience. Mapping certain key lifestyle factors such as sleep patterns and degree of sedentary behavior might be a worthwhile pursuit in recalcitrant cases. Future research should assess the impact of targeted lifestyle interventions in this patient population on both measures of DED burden and broader quality of life metrics.

Future directions:

- Exploring targeted lifestyle interventions in people with DED and assessing the impact on both direct DED metrics and broader quality of life parameters.

Key points:

- Poor sleep quality among people with DED should be better addressed in patient care.
- Habitual caffeine, alcohol, and water intake were not linked to a great likelihood of having DED; and deviations from general dietary recommendations are likely not necessary.
- Sufficient physical activity, in conjunction with less sitting time and screen use, reduces the risk for having DED.

References

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