

# Regarding the influence of sex and aging on dry eye disease

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## Dear editor

I read with great interest the article by Ahn et al<sup>1</sup> entitled “Sex differences in the effect of aging on dry eye disease”, in which the authors revealed the sex differences in the effect of aging on dry eye disease (DED) in Korean adult population. They also showed the differences in patterns of DED following ocular surgery according to sex.<sup>1</sup> The large population-based cross-sectional study was undoubtedly well designed and conducted, and suggests that matching of age and sex is recommended in further researches on DED.<sup>1</sup>

However, I would like to point out that there exist controversies regarding the effect of aging and sex on DED. Our previous study showed that age had no significant association with the prevalence of DED in adults of 65 years or older, while female sex was significantly related to increased prevalence of DED.<sup>2</sup> By contrast, studies in the US demonstrated that prevalence of DED increased with aging both in male and female populations.<sup>3,4</sup> Moreover, there are differences in pathophysiology of DED according to age. Although dysfunction of lacrimal and meibomian glands may play an important role in the pathogenesis of DED in the elderly, DED associated with visual display terminal use or contact lens wear is more common in young and middle-aged patients.<sup>5</sup> Therefore, I believe these differences in the pathogenesis should be considered in the evaluation of the effects of sex and aging on DED.

Considering that sex hormones may account for the sex-related differences in the associations between DED and aging,<sup>1</sup> I would also like to point out that the evaluation of the association between age of menopause and DED could be helpful for elucidation of the sex-related differences. In addition, although the authors did include rheumatic arthritis and depression in the analyses, inclusion of other rheumatic diseases including Sjögren syndrome and psychologic conditions including stress, anxiety or sleep disorder would also be informative.

I believe consideration of these factors might be helpful for the authors to perform further researches regarding the influence of sex and aging on DED.

## Disclosure

The author reports no conflicts of interest in this communication.

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## Authors' reply

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## Dear editor

We thank the author for taking a profound interest in our study. We agree with the author's opinion that there were a few controversial points in this study, and several factors such as psychologic condition, sleep disorder, and visual display terminal use should be considered. However, to the best of our knowledge, there was no report showing a difference in aging effects on DED according to sex, and many

epidemiologic studies<sup>1-3</sup> including the author's study, did not consider previous ocular surgery history which could be a major risk factor of DED. Our study considered previous ocular surgery and other significant factors in DED, and showed consistent differences in aging effects on DED between men and women from large-scale population and several statistical methods. In that sense, our study can be meaningful. We do not try to say that aging in men may be more related with DED than in women. The focus of this study is that there may be distinct sex differences in the effect of aging on DED, and age- and sex matching are very important in clinical studies about DED.

## Disclosure

No author has any proprietary or conflicting interest in this communication.

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