

Reply to the letter by Xing-Ru Zhang and Zhen-Yong Zhang: Comments on “Inverse relationship between macular pigment optical density and axial length in Chinese subjects with myopia”

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Dear Editor,

We thank Xing-Ru Zhang and Zhen-Yong Zhang for their comments on our article [1]. In their letter, they discussed the relationship between macular pigment optical density (MPOD) and axial length (AL), and provided advice and suggestions regarding our findings.

In our study, we used a limited sample size to investigate the relationship between AL and MPOD in myopic Chinese patients. We observed an inverse correlation between these two factors and a non-significant decrease in MPOD with increasing age. Although recent studies [2] on a larger sample group of the Chinese population noted a decrease of MPOD with increasing age, these findings were controversial. Raman et al [3] estimated the normal value of MPOD in an adult south Indian sample and found that the mean MPOD increased from 20–29 to 30–39 years. Thereafter, MPOD declined in age groups 40–49, 50–59, and ≥ 60 years. This revealed that MPOD may not decline simply with increasing age, but initially increases in young adults. The mean age of subjects recruited in our study was 35.01 ± 12.59 years old (ranging from 18 to 67 years old), which may explain the non-significant decrease of MPOD observed. Furthermore, our study subjects did not represent the normal population, but those with myopias. This may influence the decrease of MPOD with AL increase.

The relationship between the decrease of MPOD in myopia, particularly pathologic myopia with an AL longer than 26 mm, and the higher incidence of myopic maculopathy

remains poorly understood. We thus focused on the relationship between MPOD and AL in myopic Chinese patients. As Xing-Ru Zhang and Zhen-Yong Zhang noted, MPOD is affected by numerous factors including age, sex, body mass index (BMI), genetic susceptibility, and levels of dietary intake of carotenoids. To eliminate influences from covariants such as age and sex, we performed partial correlation analyses. Other than refractive error, all eyes had no concurrent disease and each subject received no extra supplementation with lutein/zeaxanthin excluding dietary differences. Sasamoto et al [4] found that, although daily supplementation with 6 mg of lutein for 1 year improved visual functions such as contrast sensitivity and retinal sensitivity, it did not affect the MPOD level. Therefore, we did not take the dietary intake of carotenoids into consideration.

Lastly, we should be aware of other factors, including BMI, in our future studies. A larger sample size will also allow stronger conclusions to be drawn.

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