Prevalence and Risk Factors of Dry Eye Disease among Chinese Geriatric Patients: A Cross-Sectional Analysis

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Abstract:

Introduction: Dry eye disease (DED) is a common and debilitating ocular condition that affects millions of people worldwide. In recent years, there has been a noticeable rise in DED occurrence in the elderly population, yet there is a lack of research focusing on this growing and vulnerable group. This study aims at filling this research gap by assessing the prevalence and associated risk factors of dry eye disease in the Chinese geriatric population.

Method: In this cross-sectional population-based study, a total of 578 Chinese subjects aged 50 and above were recruited and screened by comprehensive DED assessments including Ocular Surface Disease Index (OSDI), non-invasive keratographic tear breakup time (TBUT), and standardized ocular surface staining. Cases are defined according to the Asia Dry Eye Society (ADES) diagnostic criteria as patients with both symptoms (OSDI score 13+) and signs (TBUT <10 or a positive staining score). Prevalence of DED was calculated, and odds ratio (OR) for risk factors inclusive of age, sex, smoking exposure, and systemic diseases were evaluated using logistic regression analysis, reported at 95% confidence interval (CI).

Results: The prevalence of symptomatic DED among the studied geriatric population is 15.2%. Female sex (OR = 1.85, 95% CI = 1.1054-3.1012, p = 0.0192),

second-hand smoking (OR = 5.36, 95% CI = 1.1054-3.1012, p = 0.0002), and ischemic heart disease (OR = 3.98, 95% CI = 1.6671-9.5133, p = 0.0019) were found to be significant risk factors for DED. In particular, the prevalence of DED tripled to 47.6% among those exposed to second-hand smoke. Additionally, a two-sample t-test revealed that the number of years of exposure to second-hand smoke was also significantly correlated with an increased risk of DED (P = 0.001).

Conclusion: This is the first population-based study conducted to assess the prevalence and risks associated with DED in Chinese elderly. Second-hand smokers, females, and ischemic heart disease patients showed a significantly increased risk in developing DED, highlighting future directions for targeted screening and prevention.

Keywords: *Dry Eye Disease, Ocular Disease, Geriatric Ophthalmology, Ophthalmic Epidemiology, Population-based Health Screening*