

Classification of Visual Field Abnormalities in Highly Myopic Eyes without Pathologic Change

Fengbin Lin (1) , Shida Chen (1) , Yunhe Song (1) , Fei Li (1) , Wei Wang (1) , Zhenni Zhao (2) , Xinbo Gao (1) , Peiyuan Wang (1) , Ling Jin (1) , Yuhong Liu (1) , Meiling Chen (1) , Xiaohong Liang (1) , Bin Yang (3) , Guili Ning (4) , Ching-Yu Cheng (5) , Paul R Healey (6) , Ki Ho Park (7) , Linda M Zangwill (8) , Tin Aung (9) , Kyoko Ohno-Matsui (10) , Jost B Jonas (11) , Robert N Weinreb (12) , Xiulan Zhang (13) , Glaucoma Suspects with High Myopia Study Group

1 State Key Laboratory of Ophthalmology, Zhongshan Ophthalmic Center, Sun Yat-sen University, Guangdong Provincial Key Laboratory of Ophthalmology and Visual Science, Guangdong Provincial Clinical Research Center for Ocular Diseases, Guangzhou, China.

2 Department of Pediatric Ophthalmology, Guangzhou Children's Hospital and Guangzhou Women and Children's Medical Center, Guangzhou Medical University, Guangzhou, China.

3 Department of Ophthalmology, Zigong Third People's Hospital, Zigong, China.

4 Department of Ophthalmology, Guizhou Aerospace Hospital, Zunyi, China.

5 Singapore Eye Research Institute, Singapore National Eye Center, Singapore, Republic of Singapore; Ophthalmology & Visual Sciences Academic Clinical Program (Eye ACP) , Duke-NUS Medical School, Singapore, Republic of Singapore.

6 Centre for Vision Research & Westmead Clinical School, University of Sydney, Sydney, Australia.

7 Department of Ophthalmology, Seoul National University Hospital, Seoul National University College of Medicine, Seoul, Korea.

8 Hamilton Glaucoma Center, Shiley Eye Institute, Viterbi Family Department of Ophthalmology, University of California, San Diego, La Jolla, CA.

9 Singapore Eye Research Institute, Singapore National Eye Center, Singapore, Republic of Singapore.

10 Department of Ophthalmology and Visual Science, Tokyo Medical and Dental University, Tokyo, Japan.

11 Department of Ophthalmology, Medical Faculty Mannheim, Heidelberg University, Heidelberg, Germany; Institute of Molecular and Clinical Ophthalmology, Basel, Switzerland. Electronic address: Jost.Jonas@medma.uni-heidelberg.de.

12 Hamilton Glaucoma Center, Shiley Eye Institute, Viterbi Family Department of Ophthalmology, University of California, San Diego, La Jolla, CA. Electronic address: rweinreb@ucsd.edu.

13 State Key Laboratory of Ophthalmology, Zhongshan Ophthalmic Center, Sun Yat-sen University, Guangdong Provincial Key Laboratory of Ophthalmology and Visual Science, Guangdong Provincial Clinical Research Center for Ocular Diseases, Guangzhou, China. Electronic address: zhangx12@mail.sysu.edu.cn.

PURPOSE: To develop a classification system of visual field (VF) abnormalities in highly myopic eyes with and without glaucoma.

DESIGN: Secondary analysis of VF data from a longitudinal cohort study.

PARTICIPANTS: One thousand eight hundred ninety-three VF tests from 1302 eyes (825 individuals) .

METHODS: All participants underwent VF testing (Humphrey 24-2 Swedish interactive threshold algorithm standard program; Carl Zeiss Meditec) and detailed ophthalmic examination. A comprehensive set of VF

defect patterns was defined via observation of the 1893 VF reports, literature review, and consensus meetings. The classification system comprised 4 major types of VF patterns, including normal type, glaucoma-like defects (paracentral defect, nasal step, partial arcuate defect, arcuate defect) , high myopia-related defects (enlarged blind spot, vertical step, partial peripheral rim, nonspecific defect) , and combined defects (nasal step with enlarged blind spot) . A subset (n = 1000) of the VFs was used to evaluate the interobserver and intraobserver agreement and weighted κ values of the classification system by 2 train

MAIN OUTCOME MEASURES: The classification of VF in highly myopic eyes and its associated risk factors.

RESULTS: We found that normal type, glaucoma-like defects, high myopia-related defects, and combined defects accounted for 74.1%, 10.8%, 15.0%, and 0.1% of all unique VF tests, respectively. The interobserver and intraobserver agreements were > 89%, and the corresponding κ values were 0.86 or more between readers. Bo

Trial registration: [ClinicalTrials.gov NCT04302220](https://clinicaltrials.gov/ct2/show/study/NCT04302220).

Copyright © 2022 American Academy of Ophthalmology. Published by Elsevier Inc. All rights reserved.
Ophthalmology. 2022 Jul;129(7) :803-812. doi: 10.1016/j.ophtha.2022.03.001. Epub 2022 Mar 12.

PMID: 35288144 DOI: 10.1016/j.ophtha.2022.03.001