

## Subspecialty – Ophthalmic Epidemiology



### Dr Carol Yim-lui Cheung (Singapore)

- **New Retinal Vascular Imaging and Clinical Applications**

Dr Cheung is a Research Scientist at the Singapore Eye Research Institute. “Cardiovascular diseases including heart disease, stroke, diabetes mellitus and hypertension are the most common causes of death, hospitalisation and mortality in Asia and other countries. The eye is a ‘window’ to the human circulation. The retinal blood vessels can be captured and visualised non-invasively; enabled by recent developments in ocular imaging which offer an exceptional opportunity for advanced imaging technology to document, monitor and study human micro-vascular diseases.”

“Our research has shown that the assessment of retinal damage, using new imaging technology, will allow prediction of diabetes, stroke, heart disease, hypertension and other vascular diseases – independent of conventional risk factors and diagnostic methods.”

During her presentation at APAO, Dr Cheung will introduce the new methods of retinal vascular imaging “for the measurement of novel retinal vasculature including retinal vascular calibre, retinal vascular tortuosity, retinal vascular branching angle and fractal dimension”. She will also discuss the associations of these new retinal vascular measurements with cardiovascular disease risk factors, as shown in the Singapore Malay Eye Study.



### Professor Jost Jonas (Germany)

- **Glaucoma in China: Insights from the Beijing Eye Study**

Prof Jonas is Professor and Chairman, Department of Ophthalmology, Medical Faculty Mannheim of the Ruprecht-Karls-University Heidelberg, Germany. During APAO he will talk about glaucoma insights gained from the Beijing Eye Study.

“The Beijing Eye Study is a population-based study which was performed in urban and rural regions of Greater Beijing in the years 2001 and 2006. The study included 4439 subjects with an age of 40+ years.”

“Glaucoma was determined using the International Society of Geographical and Epidemiological Ophthalmology classification scheme. The glaucoma prevalence was 3.6 per cent and increased with age, myopic refractive error and intraocular pressure. The glaucoma prevalence of 3.6 per cent was comparable with figures from Caucasian populations. The ratio of open-angle glaucoma to primary angle-closure glaucoma of 2.6 to 1 agreed with recent other studies from East Asia.”

“Glaucoma-related blindness and low vision occurred significantly more often in primary angle-closure glaucoma than in open-angle glaucoma. The factor which showed the strongest association with progression of glaucoma was an enlargement of beta zone of para-papillary atrophy and, to a lesser degree, presence of optic-disc haemorrhages at baseline. The rate of glaucoma progression was not significantly associated with optic disc size, central corneal thickness, retinal vessel diameter or retinal micro-vascular abnormalities.”



## Associate Professor Jie Jin Wang (Australia)

- **Gene-environment Interaction in Age-related Macular Degeneration: The Blue Mountains Eye Study – Can we modify our genetic risk of AMD?**

A/Prof Wang is Epidemiologist and NHMRC Senior Research Fellow at the Centre for Vision Research, Westmead Millennium Institute, University of Sydney and Westmead Hospital, Australia. A/Prof Wang is also affiliated with the Centre for Eye Research Australia in Melbourne.

“In the Blue Mountains Eye Study cohort, we found that smoking exerted a greater effect on the risk of late-stage, age-related macular degeneration (AMD) in persons with a risk allele in either the complement factor H (CFH, rs1061170) or ARMS2 (rs10490924) genes, which are known to be associated with AMD susceptibility.”

“For example, among current smokers with the CFH risk allele, the risk of late AMD was five-fold (odds ratio, OR, 10.7) that of non-smokers who had the same genotype (OR 2.2), relative to persons who were not current smokers and had the CFH non-risk genotype.”

“In addition, persons with both the ARMS2 risk allele and high levels of inflammatory markers (for example, high-sensitivity C-reactive protein, interleukin-6, soluble intercellular adhesion molecule-1) had increased risk of early and late stage AMD, compared to persons with neither or only one of the two factors (gene or inflammatory marker).”

“Weekly fish consumption was found to be protective for late AMD only in persons with the CFH CC genotype, as increasing intake of lutein and zeaxanthin was protective for early and late AMD. The message from these findings is that intervening environmental factors in genetically susceptible persons may help to reduce their risk of AMD.”

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**Note:** All effort has been made to check facts with each presenter. The writer accepts responsibility for any inadvertent errors in transcript.