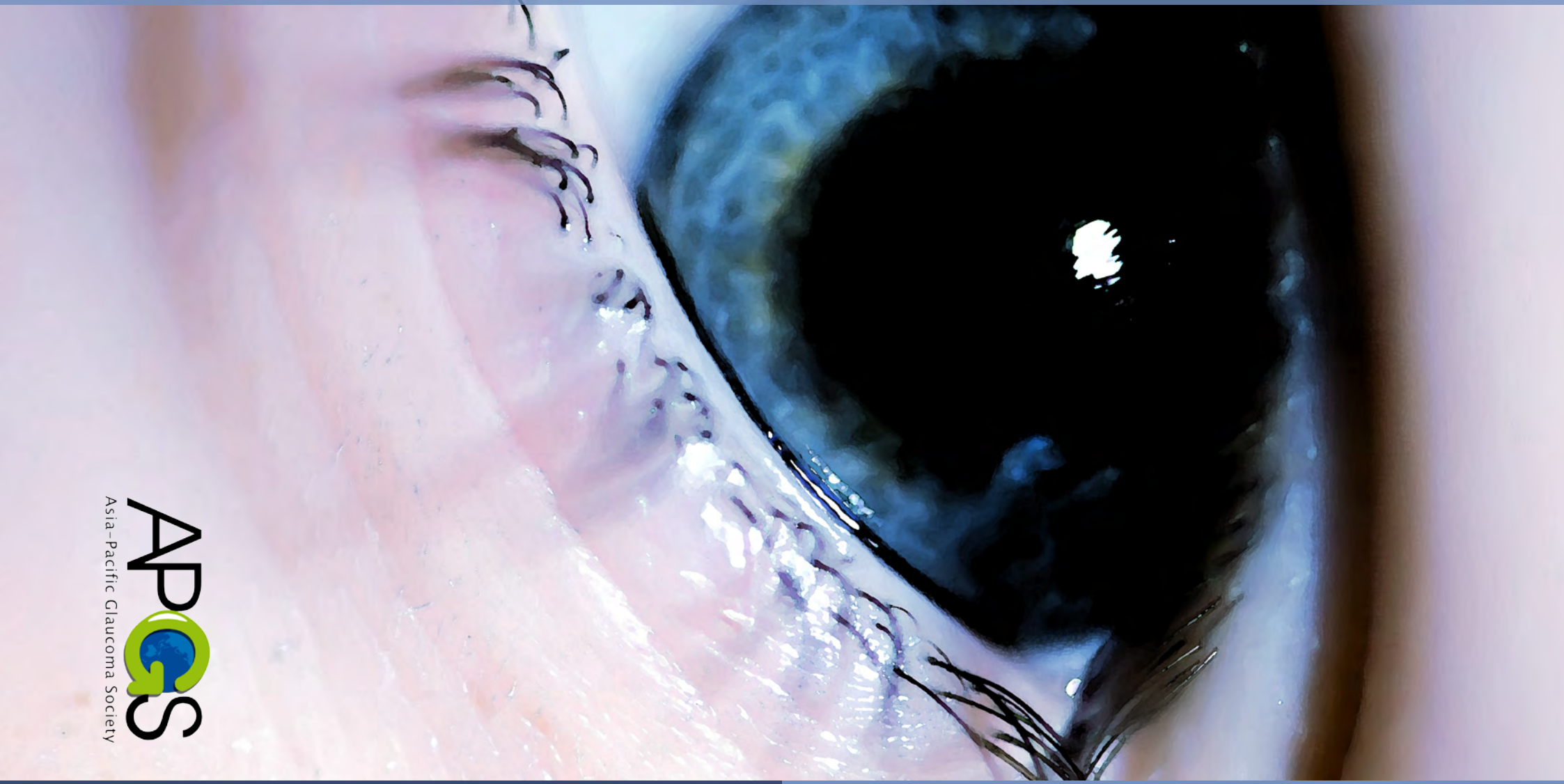
ASIA PACIFIC Glaucoma Guidelines



Asia-Pacific Glaucoma Society

THIRD EDITION

ASIA-PACIFIC GLAUCOMA SOCIETY

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ASIA PACIFIC Glaucoma Guidelines

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ABOUT APGS

The Asia-Pacific Glaucoma Society (APGS) was established to facilitate interaction between glaucoma specialists in the region, to encourage collaborative research and service projects, to increase the opportunities for exchange of skills and knowledge in this rapidly advancing field, and to assist our comprehensive ophthalmological colleagues and other eye care workers (whether medically trained or not) to be up to date with advances in all aspects of glaucoma diagnosis and management.

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Asia-Pacific Glaucoma Society

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INTRODUCTION

The **Asia Pacific Glaucoma Guidelines** originated in 2003 and have been distributed widely across the region in both print and CD-ROM format. These guidelines were created to raise awareness and update clinical knowledge about glaucoma and to provide a rational basis for glaucoma diagnosis and cost effective management that is appropriate for the Asia-Pacific Region.

Devising best-practice methodologies for the Asia Pacific region continues to represent a unique challenge, given the diverse health care service systems and the wide range of available resources. The working groups have tried to be sensitive to the wide variations in human, structural, and equipment resources available throughout the Asia Pacific region, as well as the ethnic diversity of the local communities. We appreciate that while a guideline may be suitable in one country or location, it may not be ideal in another. Wherever possible we have strived to define an optimal standard of care that is deserved by all our patients and communities.

Glaucoma subspecialists in the APGG Working Party and Review Group have collaborated closely and widely to compile the information and recommendations within the guidelines. These will assist comprehensive ophthalmologists, general health care and eye care professionals, and health care policy makers to deliver effective glaucoma management to their communities. We have relied on published evidence, wherever possible, and on expert consensus when definitive evidence was not available to ensure that the 3rd Edition of the Guidelines are as up-to-date as possible.

We have also benefitted from generous educational grants from industry: see Acknowledgements on page 1. This sponsorship permitted the Working Party to meet face-to-face and cover costs of publication and distribution of the 3rd Edition of the APGG. The easy-to-read format of the 1st Edition of the APGG has been retained; each section answers questions of '**Why?**', '**What?**', '**When?**', and '**How?**'. As with all treatment guidelines, this publication is not a prescription for automated care.

By adapting the Guidelines to the patient before you, bearing in mind individual needs, and the socio-economic environment and medical facilities available, plus your own experience, we hope the 3rd Edition of the APGG helps you to achieve the hallmark of excellent care.

Tin Aung and Jonathan Crowston

Co-chairs Asia Pacific Glaucoma Guidelines 3rd Edition Working Party

EPIDEMIOLOGY OF GLAUCOMA IN ASIA[1,2]

Glaucoma is a group of optic nerve diseases characterised by selective and progressive loss of retinal ganglion cells. It is manifest clinically by thinning and loss of the neuroretinal rim and retinal nerve fibre layer with corresponding visual field loss. Glaucoma is the leading cause of irreversible blindness worldwide.

The age-specific prevalence of glaucomatous optic neuropathy (GON) is the highest among people of West African origin, and is probably the lowest among Caucasians of European origin. Asian populations have rates of GON that are intermediate between these two groups. European- and African-derived individuals predominantly have primary open-angle glaucoma (POAG), whereas rates of primary angle-closure glaucoma (PACG) are higher amongst East Asians. Although a direct and exact comparison of POAG rates is difficult, it is likely that POAG has a similar prevalence in Asian people to that seen in European populations (Table 1). Asians account for over half of those with POAG worldwide and more than three quarters of those with PACG. The higher rate of GON in Asians is probably attributable to the excess of PACG.

Up to 36% of those with POAG and 70% of those with PACG were blind at the time of examination in population-based studies (Table 1). Blindness rates in developed countries were significantly lower than in less developed regions. PACG on average produced three times as much blindness as POAG. Cautious extrapolation of these data suggests that glaucoma probably causes blindness in approximately 1.7 million people in China. PACG is responsible for the vast majority (91%) of these cases.[3-5] Glaucoma is the leading cause of registered, permanent blindness in many countries in the region (including Hong Kong, Japan and India).[6-8]

Incidence rates of symptomatic acute angle closure (given as cases/100,000 persons/year for the population aged 30 years and older) range from 4.7 in Europe (Finland)[9] to 15.5 in Chinese Singaporeans.[10] Malay and Indian people in Singapore have lower rates than do Chinese Singaporeans (6.0 and 6.3, respectively).[10] Over the past few decades, reduced rates of acute angle closure in Taiwan have been attributed to increasing cataract surgical rates.[11]

Increasing IOP and advancing age are the most consistent risk factors for glaucoma, whether it is POAG, PACG, or secondary glaucoma.[3,6-8,10,12-15] Female gender is recognised as a major predisposing factor for the development of PACG.[4,16,17] There appears to be no gender difference for POAG. Chinese ethnic origin confers a higher risk of angle closure compared with Malay and South Indian people.[10,12] Studies in urban centres generally find POAG prevalence exceeds PACG,[3,4,18] whereas in rural areas, the reverse is true.[8,17] Population-based studies in Japan and Korea have found a high proportion of normal tension glaucoma amongst those with POAG. In India, the prevalence of POAG in urban populations is almost twice that in rural populations as reported by both the Chennai Glaucoma Study and The Andhra Pradesh Eye Diseases Study.[19,20] Due to lack of healthcare, blindness rates are higher in rural than urban centres. Most glaucoma is undetected in less developed countries with more than 85% of those being detected to have glaucoma in population-based studies unaware of their disease state. In addition to poor access to healthcare, two-thirds of those with PACG who had been detected to have glaucoma from the Chennai Glaucoma Study and The Andhra Pradesh Eye Diseases Study were being treated as open-angle glaucoma.[19,20]

PACG is most commonly associated with a hypermetropic refractive state, but it can also occur in people with myopia. A shallow anterior chamber predisposes to angle closure.[17] The depth of the anterior chamber reduces with age, tends to be shallower in women than in men, and is highly heritable.[21-23] There is an association between myopia and POAG.[24] From population-based studies, about 65% to 92% of POAG occurs in people with 'normal' population range of intraocular pressure (IOP <21 mm Hg).[25,26]

Table 1. Prevalence of primary glaucoma and reported blindness rates from different population based studies in the region.

Study Location	Age range	POAG (%)	PACG (%)	N	Setting	Ethnicity	% age POAG blind	% PACG blind
Hovsgol, Mongolia[3]	40-87	0.53	1.49	942	Rural	Asians	20.0	21.4
Andhra Pradesh, India[27]	30-70+	1.93	NA	1399	Urban	Asians	18.5	NA
Tanjong Pagar, Singapore[4]	40-79	1.79	1.14	1232	Urban	Asians	27.3	50.0
Rom Klao, Thailand[28]	50-80+	2.28	0.86	701	Urban	Asians	25.0	33.3
Aravind, India[29]	40-70+	1.24	NA	5150	Rural	Asians	9.4	NA
West Bengal, India[30]	50-80+	2.99	0.24	1269	Rural	Asians	5.3	0.0
Tajimi, Japan[17,25]	40-80+	3.94	0.63	3021	Urban	Asians	1.7	5.3
Chennai-Rural, India[31,32]	40-89	1.63	0.87	3924	Rural	Asians	3.1	2.9
Liwan, China[16]	50-93	2.11	1.53	1372	Urban	Asians	17.2	42.9
Meiktila, Myanmar[33]	40-70+	1.88	2.50	2076	Rural	Asians	7.7	61.5
Chennai-Urban, India[20,34]	40-80+	3.51	0.88	3850	Urban	Asians	1.5	14.7
Singapore Malay Eye Study[35]	40-80+	3.17	0.24	3280	Urban	Asians	9.6	12.5
Kandy, Sri Lanka[36,37]	40-70+	2.41	0.56	1244	Rural	Asians	3.3	28.6
Andhra Pradesh, India[19]	40-70+	NA	0.94	3724	Mixed	Asians	NA	42.9
Beijing, China[38]	40-70+	2.57	1.02	4315	Mixed	Asians	0.0	6.8
Bin, China[39,40]	40-70+	0.71	1.57	4956	Rural	Asians	2.9	14.1
Handan, China[41,42]	40-80+	1.86	0.76	6716	Rural	Asians	2.4	41.2
Kailu, China[43]	40-70+	1.42	1.74	5158	Rural	Asians	8.2	6.7
Yunnan, China[44]	50-80+	1.03	0.94	2133	Rural	Asians	36.4	70.0
Namil, South Korea[45,46]	40-80+	3.59	0.65	1532	Rural	Asians	5.5	0.0
Bhaktapur , Nepal[47]	40-80+	1.28	0.43	3991	Rural	Asians	2.0	5.9
Blue Mountains, Australia[15]	49-80+	2.38	0.27	3654	Rural	European ancestry	0.0	0.0
Melbourne-Urban, Australia[48]	40-90+	1.72	0.06	3264	Urban	European ancestry	0.0	0.0
Melbourne-Rural, Australia[48]	40-90+	1.97	0.07	1469	Rural	European ancestry	0.0	0.0
Kumejima, Japan[49,50]	40-90+	4.0	3.7	3762	Rural	Asian	0.7	3.7
							Mean % age blind: 8.6	Mean % age blind: 20.1

FREQUENTLY ASKED QUESTIONS

Is PACG more common than POAG in Asian countries?

PACG is not more common than POAG in South and East Asian countries. Population-based studies have reported that the prevalence of PACG varies from 0.5% to 2.5% in South East Asian countries. Population based studies of Caucasian and African populations have reported a prevalence of PACG of 0.4% to 0.7%, mostly among people older than 40 years.

Does PACG cause more blindness than POAG?

Population based studies show that PACG causes three to ten times proportionately more blindness than POAG.

Does the clinical presentation of angle closure vary in different parts of Asia?

Yes, acute angle closure is more common in China than in India, even more common in northern China compared to southern China. However, chronic angle closure is still more common than acute angle closure overall. Compared with CAC, acute angle closure is rare in the Indian subcontinent.

What is the natural history of PAC?

There is little information available: a population-based study from South India reported 22% progression of PACS to PAC and 29% of PAC to PACG over five years. Recently, a study in a high-risk Mongolian population, with a central anterior chamber depth of <2.53 mm, reported a 20.4% incidence of PACS over six years. A study in Eskimos reported a 35% progression rate for PACS after ten years.

Please refer to figure 1.1 on page 4 for definitions.

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