WORLD VIEW

Gonioscopy findings and prevalence of occludable angles in a Burmese population: the Meiktila Eye Study

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Aim: To determine the prevalence of preglaucomatous angle-closure disease in central Myanmar.

Methods: A population-based survey of inhabitants ⩾40 years in the Meiktila District was carried out; 2481 subjects were identified, 2076 participated and 2060 underwent gonioscopy of at least one eye. Eyes with angles traditionally described as ''occludable'' were recorded as primary angle-closure suspects (PACS); eyes with PACS and peripheral anterior synechiae (PAS), or an increased intraocular pressure but without primary angle-closure glaucoma, were recorded as primary angle closure (PAC).

Results: The prevalence of PACS in at least one eye was 5.7% (95% CI 4.72 to 6.62); prevalence increased with age and was more common in women (p<0.001). The prevalence of PAC in at least one eye was 1.50% (95% CI 1.47 to 1.53). All participants with PAS had at least 90° of closure (range 90–360°).

Conclusion: The prevalence of preglaucomatous angle-closure disease (PACS and PAC) in this population was 5.7% and 1.5%, respectively. PACS was more common in women, and its prevalence increased with age.

I t is estimated that by 2010 primary angle-closure glaucoma (PACG) will be responsible for approximately half the global burden of blindness due to glaucoma,[1] with most of those blinded by PACG residing in Asia.[1 2] Several recent studies have provided valuable epidemiological information about the prevalence of PACG in certain Asian regions.[3–10] It is evident that the prevalence of PACG is highly region-dependent within Asia; it seems to be particularly common in Mongolian and Chinese eyes and variable across India and Southeast Asia.[4–6 8–11]

The International Society for Geographical and Epidemiological Ophthalmology (ISGEO) has recently proposed definitions which reserve the term ''glaucoma'' for those with glaucomatous optic neuropathy (GON).[12] Those eyes with iridocorneal angles traditionally described as ''occludable'' have been renamed as primary angle-closure suspects (PACS), and those meeting the criteria for PACS, but with peripheral anterior synechiae (PAS) and without GON, are described as having primary angle closure (PAC). These conditions are considered to represent preglaucomatous stages in the natural history of PACG,[3 12] and indicate the long-term risk of visual morbidity.[13 14] Hence, according to this conceptual model, population-based gonioscopic data can provide valuable information about the risk level of PACG within a defined population, and can assist in the implementation of screening and treatment programmes and in the allocation of limited healthcare resources.[15 16]

Anecdotally, acute angle-closure glaucoma is a common clinical entity with high visual morbidity in central Myanmar (formerly Burma); however, until now, there have been no robust data about the prevalence of angle-closure disease in this region, and gonioscopic findings from Burmese eyes have hitherto been unreported. We conducted a population-based ophthalmic survey in the rural Meiktila District in central Myanmar, with an aim of providing accurate gonioscopic data on this population, including the prevalence of PACS and PAC.

METHODS

The Meiktila Eye Study was a population-based, cross-sectional ophthalmic survey of the inhabitants of rural villages in the Meiktila District of central Myanmar. The study was conducted within the Mandalay Division, encompassing an area of 34 253 km², divided into seven second-order administrative districts of approximately equal size. The township of Meiktila (with a population of approximately 251 000), located at 20°53′N, 95°53′ E, lies centrally in the Meiktila District, and is the only non-agricultural region in this entire district. The district is arbitrarily divided by the Ministry of Health (MOH) into six zones served by a centrally located eye hospital in Meiktila.

Participants were selected using a randomised, stratified, cluster-sampling process. A sampling frame consisting of the list of all villages in the Meiktila District with their populations was obtained from the MOH. For logistical reasons, sampling was restricted to villages within 3 h drive from Meiktila (an area encompassing approximately 80% of the district).

Study population

All people aged ⩾40 years within each selected village were eligible for inclusion. Healthcare workers from Meiktila Township enumerated the selected villages (and advertised and promoted the survey) before commencement of the survey. Six small villages (one from each zone) and four large villages were enumerated, providing a total sample population of 2481 people, all belonging to the Burman ethnic group.

Data collection

A single survey team conducted the entire study in November 2005. Each team member was assigned specific tasks and was well trained in the appropriate area. All equipment and personnel were transported to each village, and the data collection occurred on site. An ophthalmic history was obtained in the participants' own language, including the occurrence of ocular pain, blurred vision and haloes.

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Abbreviations: GON, glaucomatous optic neuropathy; IOP, intraocular pressure; ISGEO, International Society for Geographical and Epidemiological Ophthalmology; MOH, Meiktila Eye Study; PAC, primary angle closure; PACG, primary angle-closure glaucoma; PACS, primary angle-closure suspects; PAS, peripheral anterior synechiae; VDCR, vertical cup:disc ratio