ORIGINAL ARTICLE

Utilisation of Ophthalmic Services by Foreign Nationals in Johor: A Review of 452 Patients

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Summary

Between 1st January 1999 and 31st December 2000, 452 foreign nationals were treated at the Department of Ophthalmology, Hospital Sultanah Aminah, Johor Bahru. Eighty-five percent were male. The peak age range was from 21 to 30 years old. The patients were predominantly Indonesians (61%). A history of trauma was present in 63% of patients. Eight percent of eyes had severe visual impairment. Six patients (1.3%) were blind by WHO standards. Traumatic eye conditions, inflammatory/ allergic eye conditions and degenerative eye conditions comprised 66%, 13% and 10% respectively of ocular pathology seen. The commonest ocular findings were corneal foreign body, corneal abrasion and subconjunctival haemorrhage.

Key Words: Ocular trauma, Migrant workers, Foreigners, Eye injuries

Introduction

The Population and Housing Census of Malaysia in 2000 determined that 150,530 non-Malaysian nationals (96973 males and 53557 females) reside in Johor state (population 2,740,625)[1]. Little is known of their utilisation of health care services.

The purpose of this study was to gain an insight into their usage of ophthalmic care facilities available so as to better provide for their ophthalmic care needs. Here, we present a series of non-Malaysian ophthalmic patients seen at the Department of Ophthalmology in Hospital Sultanah Aminah, Johor Bahru (HSAJB).

Hospital Sultanah Aminah is a 989 bed general hospital serving the district of Johor Bahru[2]. It is also the tertiary referral center for Johor state. Between 1st January 1999 and 31st December 2000, the Department of Ophthalmology in HSAJB treated 15259 new patients. Patients made 34328 follow up visits to the department during that time and a total of 2032 elective and 260 emergency operations were performed.

Materials and Methods

A retrospective study was made of all non-Malaysian nationals holding foreign identity documents presenting as new referrals to the Department of Ophthalmology in HSAJB during a two-year period from 1st January 1999 to 31st December 2000.

Details recorded included nationality, age, sex, district of origin, referral source, presenting

This article was accepted: 30 April 2003

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complaints, duration of presenting complaints, presenting Snellen visual acuity, ocular pathology and outcome.

Good visual acuity was defined as a Snellen visual acuity of 6/12 or better, moderate visual impairment was defined as a Snellen visual acuity of 6/18 to 6/60 inclusive while severe visual impairment was defined as a Snellen visual acuity of 5/60 or worse.

The patients were divided into four groups by nationality for analysis, namely Indonesian nationals, Bangladeshi nationals, Singaporean nationals and other nationals.

Statistical analysis was performed using a chi-square test.

Results

A total of 452 patients were studied. Two hundred and twenty-six patients presented in 1999 and another 226 patients in 2000. These comprised 277 Indonesian nationals (61.3%), 138 Bangladeshi nationals (30.5%), 21 Singaporean nationals (4.6 %) and 16 other nationals (3.6%). The last group consisted of 3 Indian nationals, 3 Myanmar nationals, 2 British nationals, 2 Pakistani nationals, 2 Philippines nationals, 2 Sri Lankan nationals, 1 Egyptian national and 1 Thai national. These patients comprised 3.0% of all new referrals seen in the Department of Ophthalmology during the study period.

There were 385 males (85.2%) and 67 females (14.8%). Males accounted for a higher proportion of patients than expected from the Johor non-Malaysian population (85.2% versus 64.4%, $p<0.001$).

Table I illustrates the age distribution of the patients. The age range was 4 days to 90 years (mean age 30.1 years). The peak age range was 21 to 30 years. A total of 427 patients (94.5%) fell within the economically active 15 to 64 year old age range. This was significantly higher than that seen in the Johor Malaysian population (94.5% versus 62.7%, $p<0.001$).

Figure 1 illustrates the district of origin of the patients. The majority of patients (72.8%) came from the Johor Bahru district. Patients presented from 7 of the 8 districts of Johor state with Segamat being the exception. Six patients presented from outside Johor state, 5 coming from Singapore and 1 from Kuala Lumpur.

Table II summarises the referral sources for the patients. 58.8% of patients were referred from departments within HSAJB. Government medical practitioner referrals accounted for 78.0% of referrals, as compared to 22.0% from private medical practitioners. The Bangladeshi patients were more likely to be referred by private medical practitioners compared to the other groups (30.4% versus 18.2%, $p<0.01$).

Ocular discomfort was the commonest presenting complaint occurring in 47% of patients. Blurring of vision occurred in 27% of patients. Red eye(s), watering and lid swelling occurred in 19%, 11% and 9% of patients respectively. Complaints of photophobia, ocular discharge, itching, headache, diplopia, floaters, squint and ptosis each occurred in less than 5% of patients.

Figure 2 demonstrates the duration of the patient's presenting complaint prior to first attendance at the Department of Ophthalmology. Overall, 27.0% of patients attended within one day of symptom onset while 59.3% attended within one week of symptom onset. The Singapore cohort was less likely to attend within one week of symptom onset compared to the other groups (33.3% versus 60.6%, $p<0.025$).

The presenting visual acuity was recorded in 433 patients (866 eyes). Table III summarises the level of presenting visual acuity in these patients. Overall, 74.5% of the eyes had good visual acuity, 17.4% had moderate visual impairment and 8.1% had severe visual impairment. Severe visual

impairment was more likely to be noted amongst the eyes in the Singapore cohort compared to the other groups (30.0% versus 7.0%, p<0.001).

Six patients were blind by the World Health Organization's definition, all having a visual acuity of 3/60 or less in the better eye. Cataracts accounted for 5 cases and advanced open angle glaucoma for one case. This gives a prevalence of blindness in this study of 1.3%.

Ophthalmic pathology was recorded in 424 patients (93.8%). A normal examination was recorded in 28 patients (6.2%). Traumatic eye conditions accounted for 66% of findings, followed by inflammatory/allergic eye conditions (13%), degenerative eye conditions (10%), infective eye conditions (4%), developmental eye conditions (3%), metabolic eye conditions (1.9%), glaucoma (0.9%), neurological eye disorders (0.9%) and malignancy (0.2%).

Table IV summarises the commonest ocular pathologies recorded in the patients. Eight of these 13 conditions were associated with ocular trauma. Other potentially sight and/or life threatening pathology also noted included 6 cases of glaucoma, 5 cases of traumatic cataract, 2 cases each of gonococcal conjunctivitis, preseptal cellulitis, intraocular foreign body and retinal vasculitis and 1 case each of traumatic optic neuropathy, neuroretinitis, orbital cellulitis and invasive ethmoidal carcinoma.

A total of 284 patients (62.8%) comprising 195 Indonesian nationals, 78 Bangladeshi nationals, 5 Singapore nationals and 6 other nationals had a definitive history of trauma. A higher percentage of trauma was reported by the Indonesian cohort compared to the other groups (70.4% versus 50.9%, p<0.001). These individuals accounted for 121 of the 122 patients (99.1%) who attended the Department within one day of onset of their ocular complaint. All patients were male apart from 16 Indonesian females. Workplace-related mechanical trauma accounted for 208 patients, followed by workplace-related chemical trauma (34 patients). Motor vehicle accidents, assault and accidents at home accounted for 19, 13 and 10 patients respectively. Only 2 of the assault cases were associated with alcohol use.

Some 292 patients (64.6%) attended no follow up appointments. One hundred and forty-four patients (31.9%) attended 1 to 4 follow up visits, 12 (2.7%) attended 5 to 8 follow up visits while 4 (0.8%) attended 9 or more follow up visits. These patients accounted for a total of 341 follow up visits, constituting 1.0% of all follow up visits to the department during the study period.

Fifty patients (11.1%) were admitted under the Department of Ophthalmology for inpatient treatment. They accounted for 452 days of inpatient stay. Thirty patients (60%) were admitted with ocular trauma, 13 with ocular infections, 2 with raised intraocular pressure, 1 with nummular keratitis and 1 with a retinal detachment. Three patients were admitted for routine surgery (2 cataract extractions and 1 dacryocystorhinostomy).

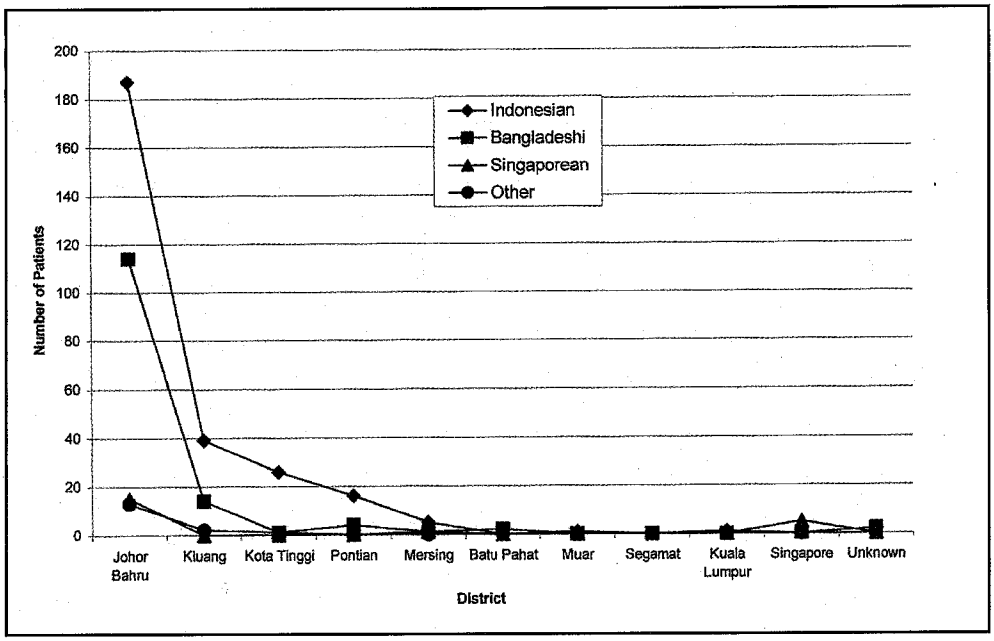

Fig. 1 : District of Origin of Study Patients

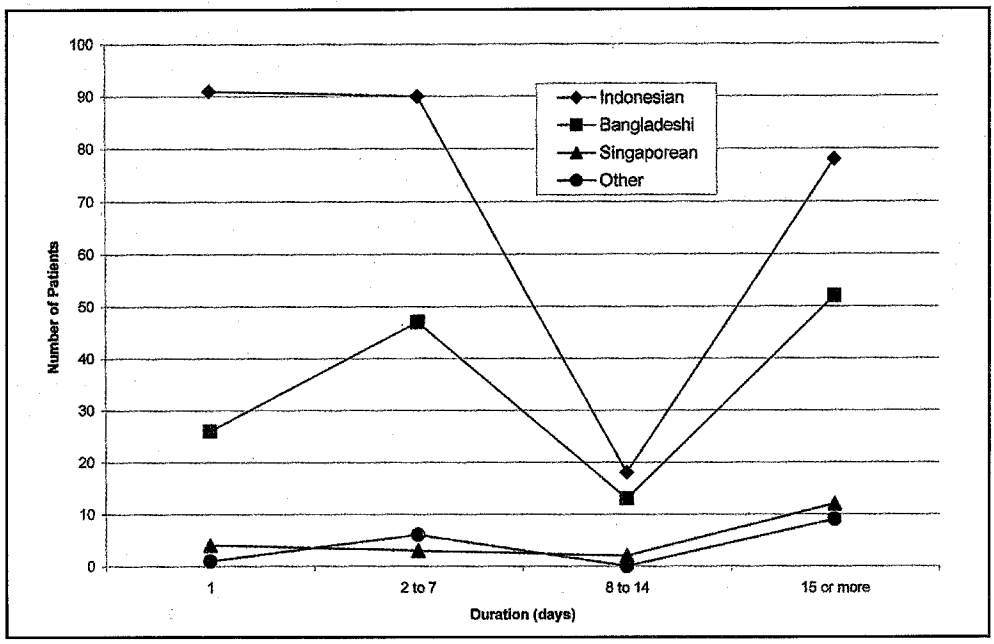

Fig. 2 : Duration of Presenting Complaints Prior to First Attendance

Table I: Age Distribution of Patients

	Nationality				
	Indonesian	Bangladeshi	Singaporean	Other	Total
Age Range(Years)					
0 - 10	8	0	1	2	11
11 - 20	25	1	1	1	28
21 - 30	162	90	0	4	256
31 - 40	59	41	6	3	109
41 - 50	18	6	2	1	27
51 - 60	2	0	2	2	6
61 - 70	0	0	6	3	9
71 - 80	2	0	1	0	3
81 - 90	1	0	2	0	3
Total	**277**	**138**	**21**	**16**	**452**

Table II: Referral Sources for Study Patients

	Nationality				
	Indonesian	Bangladeshi	Singaporean	Other	Total
Referral Centre					
HSAJB Departments	151	87	16	12	266
Other Government Hospitals and Clinics in Johor Bahru district	13	2	1	2	18
Other Johor State Government Hospitals and Clinics	58	7	3	0	68
Private Medical Practitioners	54	42	1	2	99
Unknown	1	0	0	0	1
Total	**277**	**138**	**21**	**16**	**452**

Table III: Presenting Visual Acuity (866 eyes)

	Nationality				
	Indonesian	Bangladeshi	Singaporean	Other	Total
Snellen Visual Acuity					
6/6 to 6/12	378	238	14	15	645
6/18 to 6/60	93	33	14	11	151
5/60 and less	51	5	12	2	70
Total	**522**	**276**	**40**	**28**	**866**

Table IV: Ocular Pathologies Observed

	Nationality				
	Indonesian	Bangladeshi	Singaporean	Other	Total
Ocular Pathology					
Corneal foreign body	46	29	0	1	76
Corneal abrasion	35	6	0	0	41
Subconjunctival haemorrhage	17	9	2	1	29
Chalazion	16	13	0	0	29
Pterygium	12	14	0	0	26
Senile cataract	8	0	8	1	17
Corneal ulcer	13	1	0	1	15
Nummular keratitis	14	0	1	0	15
Chemical eye injury	9	5	0	0	14
Eyelid laceration	10	1	3	0	14
Traumatic hyphaema	13	0	1	0	14
Periorbital haematoma	8	3	1	0	12
Open globe injury	10	2	0	0	12
Total	**211**	**83**	**16**	**4**	**314**

Discussion

The rapid and sustained economic growth experienced by Malaysia over the past decades has led to a steady influx of foreign nationals into the country. Information from the Department of Statistics Malaysia shows that the number of foreign nationals living in Malaysia increased from 803,000 in 1991 to 1,384,774 in 2000.[3] The majority of these (79%) are in the economically active age group of 15 to 64 years, [1] seeking a better life and standard of living for themselves and their dependants.

Foreign nationals comprise 5.5% of the population of Johor state.[1] Ninety-three percent fall within the 15 to 64 year old age range.[1] The majority of employed males work in the plantation and manufacturing sectors, whereas employed females tend to work as domestic helpers.

The majority of patients attending the Department of Ophthalmology were male, Indonesian and aged between 21 and 30 years. The fact that the male: female ratio of thepatients tended to be higher than expected may reflect the increased willingness on the part of foreign male nationals to seek medical attention. The fact that the majority of patients originate from the district of Johor Bahru could reflect the proximity of health care services, the tendency for industrial projects to be concentrated within the district [4] and perhaps the better awareness of the availability of ophthalmic care services amongst foreign nationals in the district and/or their employers and their willingness to utilise them.

The majority of patients were referred via government medical practitioners. Little data is available on the attitudes of foreign nationals as regards their preference for public or private health care. The increased tendency of patients of Bangladeshi origin to initially utilise private medical practitioners may possibly reflect their cultural attitudes towards health care.

A wide distribution of patient presentation times was noted in this study. This possibly reflects the diversity of the range of ocular conditions seen and patient perceptions as regards the urgency of

their ocular condition. While 99.1% of all cases presenting within one day of onset of the presenting complaint had a history of trauma, only 42.6% of all patients with a history of trauma presented within one day of the event occurring. Clearly, patient attitudes and awareness regarding the potential complications of ocular trauma vary in their depth and scope. The tendency of patients in the Singapore cohort to present later in the course of their ocular condition is probably due to the fact that ophthalmic health care facilities are available in Singapore.

The prevalence of blindness in this study is not dissimilar to those recorded in other studies in Asia.[5] As in these other studies, the main cause of blindness is cataracts.[5]

The main cause for attendance in this study was for ocular trauma. The majority of patients were young, male and Indonesian. This finding correlates with numerous epidemiological studies showing that young males are generally more prone to ocular injuries, regardless of the country of origin or the degree and nature of ocular trauma.[6-15] Workplace-related injuries accounted for 85% of the ocular trauma cases in this study, a figure close to the figure of 70% reported in one study in the United Kingdom[8] and 71.4% reported in a Singapore study.[14] Only 15% of the assault cases were associated with alcohol use, as compared to figures of 48% and 70% reported in two studies in the United States.[9,10] This is possibly due to cultural and religious attitudes towards alcohol use in Malaysia. In view of the large number of workplace-related injuries, efforts towards primary prevention such as education of employees as regards workplace safety and the use of protective eye wear where appropriate would help reduce the incidence of workplace-related ocular trauma amongst foreign nationals.

While ocular trauma accounted for the majority of attendance, a wide range of other ocular conditions accounted for the other cases seen. Clearly, ophthalmic care provision for foreign nationals should take into account the breadth of conditions noted in this study, a number of which are sight threatening.

The majority of patients attended no follow up. The reasons for this could include financial and work constraints and attitudes toward follow up. As such, the focus should, as far as possible, be on the provision of a 'one-stop' service where as much as possible is done to assess and treat the presenting complaint wherever possible.

In conclusion, the majority of patients seen in the study were Indonesian, male and in the economically active 15 to 64 year old age range. Although ocular trauma was the main reason for attendance and accounted for the majority of ocular pathology seen, other eye conditions were also seen; these included inflammatory/allergic conditions such as chalazion and degenerative conditions such as pterygium. Other potentially sight threatening or life threatening conditions such as cataracts, glaucoma and malignancy were also seen. In view of the relative low uptake of follow up, measures should be taken to provide as complete a treatment as possible for the presenting complaint at the time of presentation.

Acknowledgement

The authors wish to thank the Director-General of Health, Malaysia, for permission to publish this paper.

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