

Management of Glaucoma in the Maltese Health Service

Jan Janula, Denis Mallia, Martin Francalanza

Introduction

Glaucoma is a disease with characteristic changes of the optic nerve, visual field and raised intra ocular pressure. Its prevalence varies between, 1.6 to 8% and is dependent on the ethnic composition of the population and it is one of the leading causes of blindness in the developed world. There are 67 800 000 people worldwide suffering from glaucoma.¹

In recent years, a number of highly potent topical medications have been introduced. These have substantially improved the conservative management of glaucoma. New laser techniques are also being used and safer operative techniques have been developed in order to cope with the more resistant cases of glaucoma.

A previous study on 'Glaucoma in Malta', conducted in 1989, established that 3% of Maltese population over the age of 40 suffers from glaucoma.²

This study was carried out in order to assess the management of glaucoma patients in the Maltese Government Health Service at the present time.

Methods

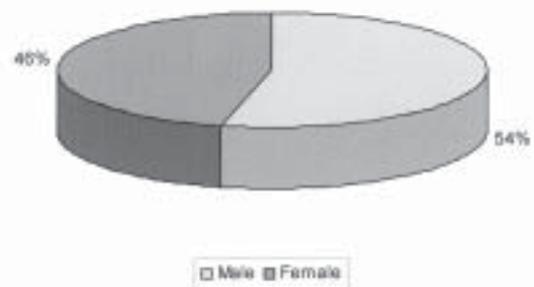
During the period from 1/7/2002 to 30/6/2003, a Glaucoma Survey was carried out at St.Luke's Hospital (SLH), Gozo General Hospital and in the five Health Centres in Malta.

A specifically designed standard form was used by the doctors at the outpatients department to record details of the visual functions (Snellen visual acuity and central visual field carried out by one of authors on Humphrey Visual Field Analyser), intraocular pressure, type of glaucoma and details of its management.

Other sources used were Schedule V database (which records patients with chronic disease entitled to free medicines and the medication they are on), the Surgical Operations Register (SLH),

Hospital Activity Analysis (SLH) and records of visual field examinations. Collected data was analysed using an Excel spreadsheet and Access database.

Figure 1: Gender Distribution

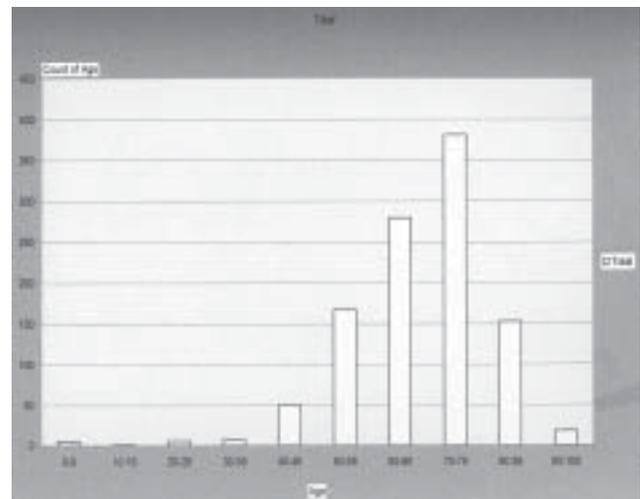


Results

Basic demographic data was collected for 2650 patients. Of these 1220 were women and 1430 were men, which give female to male ratio of 1:1.7 (Figure 1).

Age distribution was examined (Figure 2), and clearly Glaucoma in the Maltese population is exceptional below the age of 40, after which it starts to increase, reaching a peak at the age of 75.

Figure 2: Age Distribution



Jan Janula MD PhD
Department of Ophthalmology
St Luke's Hospital, Guardamangia, Malta
Email: jjanula161@onvol.net

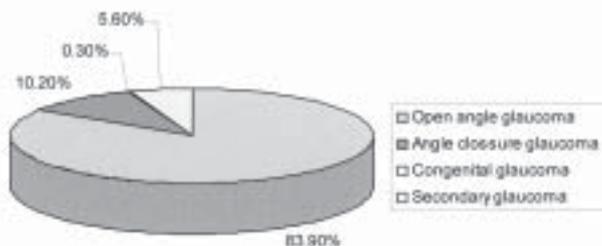
Denis Mallia MD
Department of Ophthalmology
St Luke's Hospital, Guardamangia, Malta

Martin Francalanza MSc
Department of Ophthalmology
St Luke's Hospital, Guardamangia, Malta

Detailed clinical data was collected for 874 glaucoma patients. These were patients from two Consultants' firms out of the five consultants treating ophthalmic patients in the Government Health Service.

Figure 3 subdivides the 874 patients according the different aetiological types of glaucoma. The majority of our patients (83.9%) suffer from Chronic Open Angle Glaucoma, 10.2% have Acute or Chronic Angle Closure Glaucoma and 5.6 % suffer from Secondary Glaucoma (mostly of the neovascular type) and the remaining (0.3%) suffer from Congenital Glaucoma. Cases of

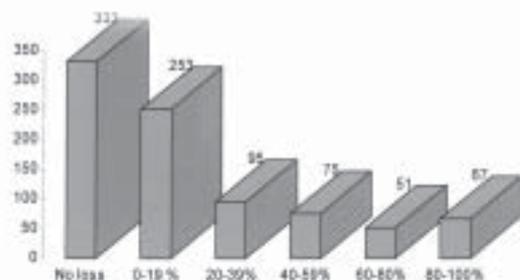
Figure 3: Types of Glaucoma in Malta



normal tension glaucoma were included in the Open Angle Glaucoma group.

Severity of the disease was assessed by the visual field loss (Figure 4). Of the total number of patients, 38% had no visual field loss with a cup/disc ratio more then 0.4, 29% had minimal central visual field loss, 22% moderate and 8% had very severe

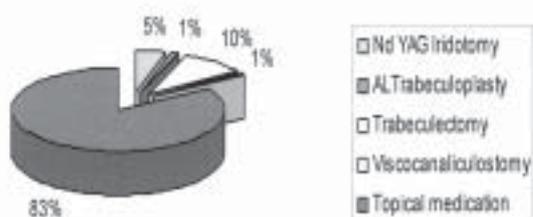
Figure 4: Loss of Visual Field



central visual field loss. Glaucoma was the reason of legal blindness in 3% of our patients.

The different types of treatment were analysed and are shown in Figure 5. The majority of patients (83%) were controlled conservatively using mainly topical therapy.

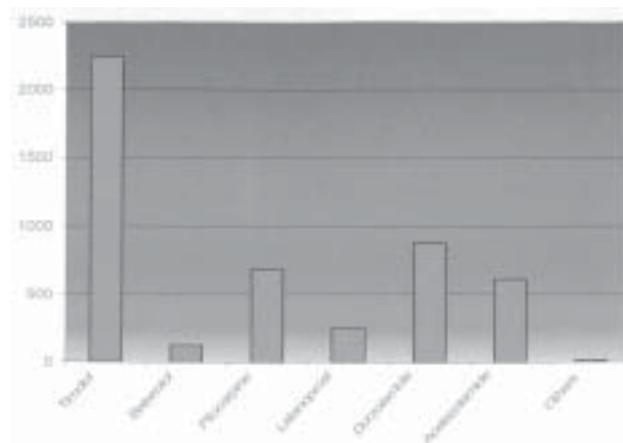
Figure 5: Different Therapies



Laser treatment was used in 6% of our patients; Nd YAG iridotomy was commonly performed in angle closure glaucoma: the number represents treatment of the eyes after an acute attack and fellow eyes. No laser iridotomy was performed on the patient who had no previous acute glaucoma attack. Argon laser trabeculoplasty was performed on open angle glaucoma.

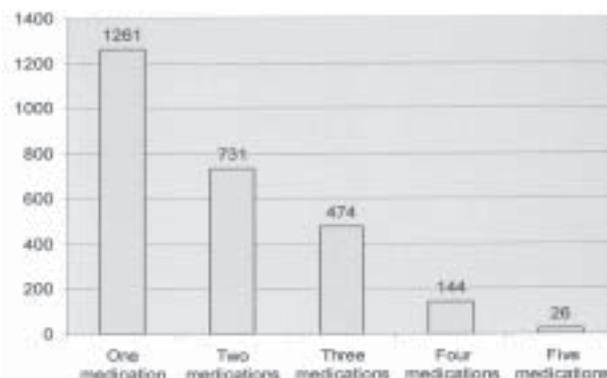
The most common surgical intervention performed was trabeculectomy which was used in 10% of cases. No antimetabolite was ever used. The modern technique of non-perforating glaucoma surgery – visco canaliculostomy - was used in 1% of our cases, a procedure which was introduced in 2003 at St Luke's Hospital.

Figure 6: Use of different medications



With regards to the topical therapy, the most commonly used eye drops for glaucoma were beta-blockers. These are usually the first line of therapy. This is followed by dorzolamide and latanoprost. Long term systemic acetazolamide (Diamox) is still being used by a large number of patients (Figure 6). The majority of 2650 conservatively treated patients are controlled by one medication only, but there are 650 patients who require three or more medications to achieve adequate control (Figure 7).

Figure 7: Number of medications per patient



Discussion

In the Maltese glaucoma population, there is a significantly higher number of males suffering from glaucoma than females. This is in agreement with other studies^{3,4,5} indicating that the male sex is another risk factor of glaucoma.

Age distribution is very similar to other studies. The number of glaucoma cases start to increase by the age of 40 and reaches a peak in the mid-seventies.⁵

Open angle glaucoma usually represents the absolute majority of glaucoma types in both Caucasian and black populations. More than 50% of glaucoma sufferers in the Asian population have angle closure glaucoma. Our study shows that 90% of the Maltese glaucoma sufferers have of the open angle type.^{6,7,8}

Glaucoma is a potentially blinding disease. Its outcome is dependent on early diagnosis, efficient therapy and patient compliance. There are 3.2% of glaucoma patients who are legally blind. Most of them are cases of neovascular glaucoma.

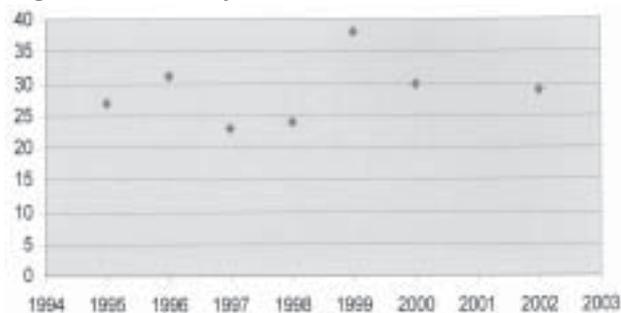
About 70% of our patients have minimal and 10% moderate loss of central visual field. A higher incidence of severe loss of central visual field is prevented by the Glaucoma screening program, which allows us to control the disease adequately before advanced changes develop.

As in other countries, the most common treatment of glaucoma is based on topical eye drops, with beta blockers being used as first preference. There are a relatively high number of people using systemic acetazolamide, a treatment which is known to have many side effects, especially in the elderly. The use of more than two topical medications is not very efficient and might be inconvenient to the patient. We suggest that we should, in the future, be more rational in the use of drops combinations. In the UK there was a decline in glaucoma surgery owing to the introduction of very efficient modern topical antiglaucoma medication.⁹ This is not reflected in Malta as the number of glaucoma operations has remained steady over the last 8 years (Table 9). Furthermore, the use of laser in the treatment of Glaucoma in Malta Health Service is low in comparison with other countries, the reason being locally the lack of modern laser devices required for this kind of treatment.

Conclusion

Glaucoma sufferers on the Maltese Islands have similar characteristic to glaucoma sufferers in other European countries. A well conducted screening program allows us to treat a high number of glaucoma patients before irreversible damage is done to the eye.

Figure 8: Number of Trabeculectomies



Locally, glaucoma patients are well controlled. However, in many cases, multiple medications are used. A significantly larger proportion of patients is using long term acetazolamide, which has undesirable side effects.

It would be beneficial and cost-effective if new laser equipment were purchased so as to allow the use of transcleral cyclotherapy, selective trabeculoplasty and other techniques. Finally, we suggest that more frequent use of laser treatment and more rational use of topical medication will improve care of glaucoma patients in Malta.

References

1. Klein BE, Klein R, Sponsel WE, Franke T, Cantor LB, Martone J, Menage MJ. Prevalence of glaucoma. The Beaver Dam Eye Study. *Ophthalmology* 1992 Oct;99(10):1499-504.
2. Cachia J, Soler R, Blagojevic M, Agius Muscat H. Eye Disease – Survey, Malta, University of Malta, 1989
3. Tielsch JM, Katz J, Sommer A, Quigley HA, Javitt JC. Family history and risk of primary open angle glaucoma. *The Baltimore Eye Survey. Arch Ophthalmol* 1994 Jan;112(1):69-73.
4. Leske MC, Connell AMS, Wu S-Y, Hyman LG, Schachat AP (1995) The Barbados Eye Study Group: Risk factors for open-angle glaucoma *Arch Ophthalmol*, 113, 918-924
5. Dielemans I, Vingerling JR, Wolfs RC, Hofman A, Grobbee DE, de Jong PT. The prevalence of primary open-angle glaucoma in a population-based study in the Netherlands. *The Rotterdam Study. Ophthalmology*. 1999 Nov; 101 (11) :1851-5.
6. Tielsch JM, Sommer A, Katz J, Royall RM, Quigley HA, Javitt J. Racial variations in the prevalence of primary open-angle glaucoma. *The Baltimore Eye Survey. JAMA* 1991 Jul 17;266(3):369-74.
7. Martin MJ, Sommer A, Gold EB, Diamond EL. Race and primary open-angle glaucoma. *Am J Ophthalmol* 1985 Apr 15;99(4):383-7.
8. Shiose Y, Kitazawa Y, Tsukahara S, Akamatsu T, Mizokami K, Futa R, Katsushima H, Kosaki H. Epidemiology of glaucoma in Japan—a nationwide glaucoma survey. *Jpn J Ophthalmol*.1991;35(2):133-55.
9. Bateman DN, Clark R, Azuara-Blanco A,†Bain CM, Forrest C . The impact of new drugs on management of glaucoma in Scotland: observational study *BMJ*.†2001 December 15;†323 (7326): 1401–1402.