The prevalence of the diagnosis of increased intra-ocular pressure in a general practice

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To the editor: Glaucoma is one of the main causes of blindness.[1] The disease occurs in 3% to 4% of all people over the age of 70 years.[1] As many as 50% of patients suffering from this disease are unaware of their condition until a comparatively late stage, due to the asymptomatic nature of the disease.[2]

Of the objective signs of primary open angle glaucoma, the loss of visual field and pathological cupping would generally have reached an advanced stage before they could be recognised by a general practitioner, and aqueous flow can only be measured with the use of specialised equipment. However, increased intra-ocular pressure can easily be detected by tonometry performed by a general practitioner.[3]

The objective of this study was firstly to investigate the prevalence of the diagnosis of increased intra-ocular pressure in a general practice. This could indicate whether routine tonometric measurement of intra-ocular pressure (as an indication of glaucoma) should be performed by the general practitioner as part of his/her routine examination. Secondly, the study aimed to establish associations between risk factors and increased intra-ocular pressure.

This cross-sectional study was performed on patients of a general practice situated in the semi-rural area of Hartbeespoortdam in the North West Province. The first 110 patients over the age of 45 who attended the surgery for the treatment of general complaints in a three-month period were include in the study on a voluntary basis if they met the criteria of the study. Patients with the following conditions were excluded from the study, as the conditions are contra-indications for tonometry: corneal/conjunctiva infection, corneal injury or surgery, marked corneal distortion, i.e. conical or badly scarred corneas, and patients who were allergic to any local anaesthetics.

The protocol was approved by the Ethics Committee of the Faculty of Health Sciences of the University of the Free State.

A pre-trained assistant completed a checklist for each patient, and explained the aim of the study and its methods to each participant. After the participant signed the consent form, the assistant helped the patient to complete the short health questionnaire.

Each participant was informed of the results after completion of the eye pressure test and was not held liable for the costs of the test.

The first author performed all the tonometry measurements, using a Schiötz tonometer. The tonometer was calibrated each day. Patients who had an intra-ocular pressure (IOP) of more than 21 mmHg in one or both eyes were categorised as having elevated IOP. They were referred to an ophthalmologist for confirmation of the results and further management. Any form of confirmed cardiovascular disease, as well as type 1 or type 2 diabetes mellitus, was considered a risk factor for the development of glaucoma.

Results

One hundred and ten patients were included in the study. More female (74.6%) than male patients (25.5%) were seen, which fits in with the profile of the practice. The patients' ages ranged from 46 to 94, with a median of 62 years (mean age: 62.7). Patients were mainly white (87.3%), followed by black patients (10.9%). In total, 41.8 % of the patients had one risk factor and 4% of the patients also experienced a second risk factor.

Increased intra-ocular pressure was detected in 11 of the 110 patients (10%; 95% CI: 6.2%-15.7%). Their median age was 63 years. Table I shows the association between gender, family history of glaucoma and risk factors for glaucoma with elevated IOP.

The 10% prevalence rate fits in with that of a study conducted by Levi and Schwartz, during which 36 692 patients were evaluated and 8% of these patients were referred.[4]

The IOP fluctuates with the time of day, especially in glaucomatous eyes, with a tendency to be higher in the morning and lower in the afternoon and evenings.[5] Since only a single measurement was taken, of which some were taken in the afternoon, cases could have been missed.

None of the patients with elevated IOP had any eye-related complaints. These would otherwise not have been diagnosed. The general practitioner or primary care doctor has the opportunity to examine a high proportion of the older patients in society. It is important for the general practitioner to recognise both glaucoma and ocular hypertension. Recognition depends on the ability to measure intra-ocular pressure. The Schiötz tonometer is a safe, quick and reliable method of evaluating IOP.

Based on the prevalence of elevated IOP found in this study, we recommend that every general practitioner should perform tonometry at least once on every patient older than 45. This test should be repeated after 10 years. Patients with a family history of glaucoma should be evaluated annually. Since the presence of cardiovascular diseases and diabetes puts the patient at higher risk for developing IOP and glaucoma, it is suggested that patients with such risk factors be followed up at shorter intervals.

Table I: Associations with elevated IOP

	% Elevated IOP	Odds Ratio	95% CI
Gender			
Male (n= 28)	17.9	2.7	0.7; 9.9
Female (n=82)	7.3		
Family history of glaucoma. First degree relative			
Yes (n=3)	66.7	20.7	1.7; 250.8
No (n=102)	8.8		
Risk factor for glaucoma			
Yes (n=46)	17.4	4.3	1.1; 17.1
No (n=64)	4.7		

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