

Knowledge base and preferred methods of obtaining knowledge of glaucoma patients

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PURPOSE. *To gather information regarding patient's understanding of glaucoma and the manner in which patients wish to learn about the disease with the intent of improving patient education.*

METHODS. *Forty-four of sixty randomly selected ophthalmologists (73%) asked four of their patients consecutively to complete a questionnaire about glaucoma. The selection of questions was based on focus group interviews and suggestions from several experts. Topics included knowledge about glaucoma and its treatment, the need for information, and preferred providers and methods of patient education.*

RESULTS. *Fifty percent of the patients had 49% or less correct answers to questions about glaucoma or its treatment. Per item the correct answers ranged from 5% to 90%. Lack of knowledge was associated with low level of education, short duration of glaucoma, high age, and no preference for the Internet as method of supplying information. These variables, however, did not identify groups with a considerable lack of knowledge sufficiently accurately to target patient education. A high need for information was observed and included information about the patient's own glaucoma. Almost all patients preferred the ophthalmologist and many also a nurse or a representative of the Glaucoma Patient Society as providers of information. Written material was the preferred method.*

CONCLUSIONS. *Patient education should address all patients. A patient education program should cover a wide range of topics with a focus on general information through written material and information tailored to the individual glaucoma patient's needs. The ophthalmologist is a key-person, but others could play an important role in patient education. (Eur J Ophthalmol 2005; 15: 32-40)*

KEY WORDS. *Glaucoma, Information need, Knowledge, Patient education*

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INTRODUCTION

Patients with a chronic disease have a substantial need for information and frequently their knowledge about their disease is far from perfect, despite current opportunities to obtain information from their doctor and several other sources (1-13). Patients are often not satisfied with the content and amount of information

they receive (9, 11-13). Moreover, the meaning of medical information differs between patients and doctors (11). It is suggested that well-informed patients better understand their prognosis and manage their disease more adequately (14, 15). They are also more compliant and more likely to cope effectively with the changes the illness requires (15-18). Providing accurate information may reduce emotional distress, psychological

distress, anxiety, and pain that interfere with patients' adjustment to their disease (6, 13).

Studies from several countries report a lack of knowledge in glaucoma patients (1-5, 7, 14). For example, 45% of glaucoma patients did not have any idea about the cause of glaucoma and 70% thought they would go blind if their glaucoma was not treated (1). Even though many patients fear blindness, they rarely ask their ophthalmologist if they will go blind from their glaucoma (19). It is assumed that, in glaucoma patients, improved knowledge and understanding could affect compliance with treatment and follow-up appointments and lead to better understanding of their prognosis (14, 16, 17). Well-informed patients are also more likely to encourage family members to check for glaucoma (14).

Although these studies show the need for patient education, these studies do not provide sufficient knowledge to develop a patient education program. These articles do not show whether an educational program should be targeted to certain groups at risk of having a lack of knowledge, and do not provide an overview of the items that should be addressed or the providers and methods that should play a role in patient edu-

cation. The studies also do not give insight into the subjective needs for information. Moreover, the studies were not based on a thorough and systematic process of item selection and the patients were often selected from one or only a few local settings, possibly leading to biased results.

We therefore undertook a study to assess the number of patients with a lack of knowledge, groups at risk of having less knowledge, items that need to be covered, the subjective needs for information, and the preferred providers and methods for patient education.

METHODS

A cross-sectional multicenter study with self-administered questionnaires was undertaken.

The selection of the items for the questionnaire was based on four focus group interviews with patients from three general hospitals and one university hospital. None of the hospitals were private hospitals since there are very few private hospitals for a very limited number of diseases and interventions in the Netherlands. One of the focus groups consisted of members

TABLE I - NUMBER OF GLAUCOMA PATIENTS WITH CORRECT ANSWERS ABOUT GLAUCOMA

Statement	No. (%)
The chance of getting glaucoma is higher if the intraocular pressure is increased	149 (90)
It is possible to have glaucoma without knowing it	146 (88)
A patient should always tell the ophthalmologist which other medicines (s)he is taking	132 (80)
Glaucoma affects the visual field	129 (78)
The chance of getting glaucoma is higher if a family member has glaucoma	119 (72)
A patient should always tell the ophthalmologist which other diseases (s)he has	116 (70)
Young people more often have glaucoma than older people	116 (70)
Glaucoma causes reduction of visual acuity	113 (68)
The intraocular pressure is increased if it exceeds 25 mmHg	101 (61)
If the visual field is impaired, this can be repaired	83 (50)
Glaucoma often causes impaired reading	76 (46)
Nutrition influences glaucoma	71 (43)
There is only one type of glaucoma	56 (34)
The optic nerve is damaged in glaucoma	54 (33)
Medicines other than eye drops can influence the intraocular pressure	54 (33)
Without treatment, glaucoma is a fast progressing condition	44 (27)
The intraocular pressure is always increased in glaucoma	29 (18)
Strong myopia or hypermetropia gives a higher chance of getting glaucoma	13 (8)
African people have a higher chance of getting glaucoma	9 (5)

of the Glaucoma Patient Society. Because there are fewer patients with a short duration of glaucoma, special emphasis was given to the inclusion of these patients. Twenty-one patients participated. The duration of the glaucoma was 1 year or less in eight patients. Nine were members of the Glaucoma Patient Society. The initial routing questions of the interview were developed by a health education specialist and were reviewed by two other health education specialists with experience in this field. The routing questions were adjusted after each focus group interview. The focus group interviews were recorded on tape and transcribed. This was used to select the items of the questionnaire. A concept of the questionnaire was submitted to a pharmacist with research experience in the use of glaucoma medication, an ophthalmologist specialized in glaucoma, two health education specialists with practical experience in patient education, a professor in patient education, and the chairman of the Glaucoma Patient Society. The questionnaire was pilot tested on 10 glaucoma patients.

The following topics were covered in the questionnaire: knowledge about glaucoma and its treatment,

need for information, and the providers and methods patients prefer. Patients were given 19 and 18 statements about the knowledge of glaucoma and its treatment, respectively, which they could answer as yes, no, or don't know. Twenty-two topics concerning the need for information were listed. Patients could fill out whether they would like to receive a lot of, some, or no information about the stated topic. Various providers and methods were listed to investigate preferred providers and methods to supply information. Answers were yes, no, and don't know/no opinion. Details about the specific items are shown in Tables I through IV.

Sixty ophthalmologists were randomly selected from the list of addresses of the Dutch Ophthalmological Society. To increase the response an incentive was included for both the ophthalmologist and the patients. All ophthalmologists were also contacted by telephone after 2 to 3 weeks and by mail after 6 to 8 weeks to improve participation.

Ophthalmologists asked four glaucoma patients consecutively to fill out the questionnaire during their stay at the outpatient department. No selection was made with regard to the duration of glaucoma or the type

TABLE II - NUMBER OF GLAUCOMA PATIENTS WITH CORRECT ANSWERS ABOUT THE TREATMENT OF GLAUCOMA

Statement	No. (%)
Even if the intraocular pressure is under control, the visual field has to be checked	146 (88)
The course of the disease can be slowed down by eye drops	145 (87)
Stinging or burning of the eyes could be an adverse effect of eye drops	131 (79)
Blurred vision after dropping could be an adverse effect of eye drops	126 (76)
Eye drops can repair the damage caused by glaucoma	112 (68)
The pharmacy controls which medicines one is using	106 (64)
Glaucoma can only be treated by lowering the intraocular pressure	105 (63)
Each treatment is equally good for everyone	90 (54)
The use of eye drops will be redundant if one has had a laser treatment or surgery for glaucoma	74 (45)
Some eye drops should not be used by cardiac patients or asthma patients	74 (45)
Early detection and treatment will not slow the course of glaucoma	72 (43)
Eye drops can be replaced by tablets	60 (36)
Laser treatment or surgery for glaucoma can repair the damage caused by glaucoma	59 (36)
Discoloration of the iris may be an adverse effect of eye drops	51 (31)
Dyspnoea could be an adverse effect of eye drops	29 (18)
A slower heart rate could be an adverse effect of eye drops	25 (15)
It is possible to completely lose vision as a result of laser treatment or surgery for glaucoma	12 (7)
A high intraocular pressure must always be treated	9 (5)

of glaucoma medication. If a patient refused to participate the ophthalmologists were asked to select the next consecutive patient and to number the patients according to the consecutive order.

Data were entered in a database by two typists independently of each other and were checked and corrected when needed. Missing answers for a question with don't know/no opinion as an answer category were classified as don't know/no opinion. Statistical analyses were performed using SPSS software for Windows. Frequency distributions were calculated for each item of knowledge, need for information, and preference for providers and methods. The total number of correct answers was calculated for knowledge about glaucoma and its treatment. Mean value and 95% confidence intervals for this number were calculated for strata of sex, age, educational level, duration of glaucoma, and preference for Internet as method of supplying information. Multivariate linear regression was done with all these variables in the model to adjust for the other variables. In addition, an analysis of the relation of Internet preference with knowledge is presented per stratum of educational level. An analysis

of variance was used to calculate the amount of explained variance for the multivariate model.

RESULTS

Forty-four ophthalmologists (73%) responded. Thirty-four ophthalmologists returned four questionnaires, two returned five, five returned three, two sent two, and one returned one questionnaire. Therefore, 166 questionnaires were included in the study. Based on the information provided by the ophthalmologists it was calculated that 85% of the consecutive patients invited by the ophthalmologist to participate actually filled out the questionnaire. Reported reasons for not participating were cognitive dysfunction, language barriers, and lack of time.

Some patient characteristics are presented in Table V. Some had missing values for some variables. Mean age of the 166 participating patients was 65 years (standard deviation: 12, minimum: 26, maximum: 91). The patients in the study consisted of 86 men (52.1%) and 79 women (47.9%). In 39 patients (23.5%) the

TABLE III - NEED FOR INFORMATION OF GLAUCOMA PATIENTS

How much information would you like to have about:	Much, No. (%)	Some, No. (%)	Not at all, No. (%)
New developments concerning glaucoma and its treatment	123 (79)	22 (14)	11 (7)
The possible course and consequences of your glaucoma	118 (77)	21 (14)	14 (9)
Possible results of treatments	117 (75)	20 (13)	19 (12)
The present condition of your glaucoma	106 (67)	33 (21)	20 (12)
Possible adverse effects of treatments	99 (63)	36 (23)	22 (14)
The cause of glaucoma	95 (62)	38 (25)	21 (13)
Heredity of glaucoma	94 (61)	31 (20)	30 (19)
Other diseases that influence glaucoma	85 (57)	43 (28)	22 (15)
Laser treatment and eye- surgery	83 (52)	44 (28)	31 (20)
Eye drops	80 (52)	40 (26)	33 (22)
Where to find good educational material about glaucoma	77 (50)	48 (31)	30 (19)
How to function better with glaucoma	73 (47)	44 (29)	37 (24)
How to learn to cope with glaucoma	69 (44)	43 (28)	43 (28)
Resources or rehabilitation for the visually impaired	64 (41)	44 (29)	46 (30)
Social aspects of glaucoma	56 (38)	39 (26)	54 (36)
Social securities for visually impaired people	55 (36)	44 (29)	53 (35)
Psychological aspects of glaucoma	54 (36)	47 (31)	50 (33)
How to use and apply eye drops	41 (27)	36 (24)	74 (49)
The Glaucoma Patient Society	40 (26)	48 (32)	64 (42)
Work and glaucoma	29 (20)	45 (31)	72 (49)
Experiences of other glaucoma patients	25 (17)	65 (43)	61 (40)
Social support or assistance at home	25 (16)	59 (38)	70 (46)

Knowledge in glaucoma patients

glaucoma existed less than 2 years. Twenty-five (15.3%) patients had undergone glaucoma surgery and 53 (32.3%) patients had been treated with Argon laser trabeculoplasty (ALT).

Fifty percent had less than 49% correct answers. Twenty-five percent had a score of 38% or less and 75% had a score of 59% or less. Knowledge increased with higher levels of education, longer duration of glaucoma, preference for Internet as method of supplying information, and decreasing age (Tab. V). There was no difference between sexes. The differences in knowledge remained after adjusting for the other variables. Although there were differences in the mean score for knowledge between levels of some risk factors, there is also considerable overlap in the distribution of the score for knowledge between levels of (Tab. V). The difference between those who preferred Internet and those who did not was 10.3 (95% con-

fidence interval (CI) 3.1–17.6)), 5.6 (95% CI 1.4–9.7), and 3.6 (95% CI 0.3–6.9) for low, medium, and high level of education, respectively. The total amount of explained variance of the multivariate model was 34%.

Patients were given 19 statements about risk factors, pathophysiology, and consequences of glaucoma (Tab. I). The percentage of patients that gave the correct answers ranged from 5% to 90% per item. The items with the highest score for the correct answer were "the chance of getting glaucoma is higher if the intraocular pressure is increased," "it is possible to have glaucoma without knowing," and "a patient always has to tell the ophthalmologist which other medicines (s)he is using." The ones with a low score concerned other risk factors and rate of progression without treatment.

Patients were given 18 statements about topics concerning treatment, including indications, effects, and

TABLE IV - PROVIDER AND METHOD OF INFORMATION PREFERRED BY GLAUCOMA PATIENTS

	Yes, No. (%)	No. No. (%)	Don't know/ no opinion, No. (%)
Provider			
Ophthalmologist	156 (94)	3 (2)	7 (4)
Representative of the glaucoma patient society	70 (42)	47 (28)	49 (30)
Nurse of the ophthalmology outpatients' department	65 (39)	54 (33)	47 (28)
General practitioner	53 (32)	70 (42)	43 (26)
Optician	47 (28)	77 (47)	42 (25)
Pharmacist	34 (20)	86 (52)	46 (28)
Somebody of centers for education and rehabilitation for visually impaired patients	32 (19)	70 (42)	64 (39)
Another glaucoma patient	26 (16)	86 (52)	54 (33)
Someone of the department for patient education from the hospital	24 (14)	78 (47)	64 (39)
Optometrist	20 (12)	70 (42)	76 (46)
Doctor's assistant	17 (10)	103 (62)	46 (28)
Pharmacist assistant	16 (9)	104 (63)	46 (28)
A representative of the pharmaceutical industry	8 (5)	104 (63)	54 (32)
Method			
Leaflet or brochure	119 (72)	23 (14)	24 (14)
A frequently sent information brochure about glaucoma	90 (54)	41 (25)	35 (21)
Information brochure of one's health insurance company	69 (42)	65 (39)	32 (19)
Health magazines	49 (29)	76 (46)	41 (25)
Magazines for the elderly	32 (20)	92 (55)	42 (25)
National newspapers or magazines	29 (18)	95 (57)	42 (25)
Special telephone number	29 (17)	91 (55)	46 (28)
Group meetings of glaucoma patients	27 (16)	99 (60)	40 (24)
Internet	26 (16)	97 (58)	43 (26)
e-mail	21 (13)	102 (61)	43 (26)
Local or regional daily- or weekly magazines	19 (11)	102 (61)	45 (27)

adverse effects of treatments (Tab. II). The percentage correct answers per item ranged from 5% to 88%. The items with a high score for the correct answer were "even if the intraocular pressure is under control, the visual field has to be checked," "the course of the disease can be slowed down by eye drops," "stinging or burning of the eyes could be an adverse effect of eye drops," and "blurred vision after dropping could be an adverse effect of eye drops." Statements with a low score mainly addressed issues concerning some side effects of treatment.

The percentage of patients who needed information ranged from 16% to 79% per topic (Tab. III). Many patients wanted information about glaucoma and its treatment and about the state and course of their own glaucoma. A need for information about the practical and social aspects of glaucoma was reported less frequently.

Ninety-four percent of the glaucoma patients preferred the ophthalmologist as provider (Tab. IV). Other preferred providers were "a representative of the Glaucoma Patient Society" (42%), "a nurse of the ophthalmology outpatients' department" (39%), and "the general practitioner" (32%).

The most preferred methods of supplying the information were a brochure (72%) and other written material. New media like e-mail (13%) and Internet (16%) were not mentioned often.

DISCUSSION

The present study demonstrates a substantial lack of knowledge in patients and an urgent need for information on many different topics. This need concerns the state, course, and possible consequences

TABLE V - MEAN NUMBER OF CORRECT ANSWERS ABOUT GLAUCOMA AND ITS TREATMENT BY SEX, AGE, EDUCATION, DURATION OF GLAUCOMA, AND PREFERENCE TO INTERNET AS METHOD OF SUPPLYING INFORMATION

Characteristics		Number of correct answer about glaucoma and its treatment			
		Range	Mean values* (95% CI)	Unadjusted difference† (95% CI)	Adjusted difference‡ (95% CI)
Sex	Male (n=86)	6-31	18.2 (17.0-19.5)	0‡	0‡
	Female (n=79)	1-31	18.4 (17.1-19.7)	0.2 (-1.7-2.0)	1.3 (-0.4-2.9)
Age, yr	26-54 (n=40)	9-31	22.1 (20.3-23.8)	0‡	0‡
	55-64 (n=31)	9-30	19.8 (17.6-22.1)	-2.2 (-4.8-0.3)	-1.7 (-4.0-0.7)
	65-74 (n=55)	1-30	16.4 (15.0-17.8)	-5.7 (-7.9- -3.4)	-2.9 (-5.2- -0.7)
	≥75 (n=40)	8-25	16.0 (14.6-17.3)	-6.1 (-8.5- -3.7)	-3.6 (-6.0- -1.2)
Education	low (n=69)	1-29	16.0 (14.7-17.3)	0‡	0‡
	Middle (n=53)	9-31	19.0 (17.4-20.7)	3.1 (1.1-5.0)	1.3 (-0.6-3.1)
	High (n=43)	9-31	21.2 (19.6-22.8)	5.2 (3.1-7.3)	3.5 (1.4-5.6)
Duration, yr	≤2 (n=39)	6-29	16.3 (14.7-18.0)	0‡	0‡
	2-5 (n=44)	9-31	19.1 (17.3-20.7)	2.7 (0.3-5.1)	3.1 (1.0-5.2)
	>5 (n=72)	9-31	19.4 (18.0-20.7)	3.0 (0.9-5.2)	3.4 (1.5-5.4)
Internet	No (n=140)	1-31	17.3 (16.3-18.2)	0‡	0‡
	Yes (n=26)	13-31	23.8 (22.0-25.6)	6.5 (4.2-8.8)	3.8 (1.4-6.2)

* 95% CI = 95% confidence interval

† (Not) adjusted for the other variables, n=154 adjusted model

‡ Reference for linear regression

of a patients' own glaucoma as well as items that may influence the quality of life. Lack of knowledge was associated with a low level of education, short duration of glaucoma, no preference for Internet as method of supplying information, and high age. The preferred providers were the ophthalmologist, a nurse from the ophthalmology outpatient department, a representative of the Glaucoma Patient Society, and the general practitioner. Written material was the preferred method.

The questionnaire was developed in a systemic way and was based on focus group interviews of patients from different hospitals and different relevant backgrounds of patients like duration of glaucoma and membership in the Glaucoma Patient Society. Moreover, consultation of several experts was involved in the development of focus group interviews and the questionnaire. As a result, an extensive questionnaire was formed with a complete list of relevant items for the development of a patient education program. The questionnaire had a good internal consistency, Cronbach's alpha was 0.83, ranging from 0.81 to 0.83 after an item was deleted one at a time (data not shown).

The results were based on a nationwide random sample of patients. A high response rate among patients was achieved because patients were asked to fill out the questionnaire not at home but at the outpatient department. The response rate of the consecutive series of patients was 85%. It cannot be excluded completely that a bias has occurred since we had no control over the distribution of the questionnaire in every hospital. It is, however, hardly imaginable that all ophthalmologists have made a selection in such a way that the observed relations occur. This would imply that patients with a long duration of glaucoma and high levels of knowledge would have been selected, as well as patients with a short duration if they had a low level of knowledge. Moreover, the observed relations of duration of glaucoma, educational level, age, and preference for Internet seem likely a priori. Alternatives to this strategy of selecting patients would almost certainly have induced a bias, for example if only a few hospitals participated, if an ophthalmologist was asked to select only one patient, or if members from the Glaucoma Patient Society were selected. The selection of several ophthalmologists also had the advantage that workload was reduced, thereby enhancing the response rate of ophthalmologists and

preventing participation bias of ophthalmologists.

The preference for Internet does not seem to be a confounder for the relation between educational level and knowledge. It is more likely to be an intermediate variable between educational level and knowledge. In the multivariate model the relation between educational level and knowledge remained after adjusting for preference for Internet. Moreover, the relation between Internet preference and knowledge was present for every stratum of educational level. Although several risk factors are observed, they do not seem useful to select groups at risk for tailoring an educational program for patients. The overlap in level of knowledge is considerable and the amount of explained variance is 34%. Much of the level of knowledge is therefore not explained by these variables. Since the level of knowledge is very low and no tailoring can take place, patient education should focus on every patient.

The present results do not seem to be relevant for Dutch patients only. Some results concerning lack of knowledge confirm earlier studies from other countries (1-5, 7, 14). In these earlier studies a lack of knowledge of causes and risk factors like intraocular pressure and heredity was also found, even among patients with a family history of glaucoma (1, 3, 7, 20). Moreover, a need for information has been shown earlier, but details on subjects were lacking (1).

Patient education may enhance self-management, coping, compliance, and understanding of the prognosis, and reduce emotional distress, psychological distress, and anxiety (6, 13-18).

Whether these effects can be achieved with a glaucoma patient education program has not been proven for every relevant outcome variable. However, the results of our study and others make it more likely that positive effects can be achieved if high needs for information and low levels of knowledge are addressed.

For example, patients often do not alert a relative to their higher chance of getting glaucoma while it is known that informed people and their relatives are more likely to visit an ophthalmologist before advanced visual field loss has occurred (3, 21). It is also known that well-informed patients are more likely to encourage family members to check for glaucoma (14). It is therefore necessary for a patient education program to focus on issues relevant to early detection such as heredity as a cause, the importance of early detection, treatment, and the possibility of having glaucoma without knowing it.

Another advantage of patient education concerns compliance with treatment recommendations (17, 22). It is assumed that improved knowledge and understanding of the disease and treatment could affect compliance with treatment and follow-up appointments and could lead to better understanding of the prognosis (14, 16, 17). Several items from our study may be relevant in relation to compliance. These items concern intraocular pressure as a risk factor for glaucoma, reduction of intraocular pressure as the only treatment of glaucoma, the effect of treatment, adverse events, the impossibility to cure glaucoma, the relevance of regular checks of the visual field, the possible need to continue eyedrops after laser or surgery, and the practical use of eyedrops. Relevant items regarding prognosis like the rate of progression and glaucoma as a cause of reading impairment have also been identified.

Other issues to be addressed in a patient education program are the effect and occurrence of adverse events of treatment. Reduction of adverse events may be obtained when patients know and report relevant side effects and mention other drugs they use or other diseases they may have (17).

The present study also supports the need to discuss the patients' present state, the course of the disease, and the possible consequences of having glaucoma to prevent unnecessary emotional distress. This need is supported by the fact that patients rarely ask their ophthalmologist if they will go blind from their glaucoma while many patients fear blindness and 70% think they would go blind if their glaucoma is not treated (1,19).

Glaucoma has an effect on the quality of life at several stages of visual field loss (23-27). In the present study it was shown that a substantial number of glaucoma patients want information about "how to function better with glaucoma," "how to learn to cope with glaucoma," "resources or rehabilitation for the visually impaired," "social and psychological aspects of glaucoma," "social securities for visually impaired people," and work-related aspects. Therefore, patient education should also focus on these items to improve quality of life more directly.

The development of a patient education program does not only entail considerations of the content but also of providers and methods. In line with Odberg et al, nearly all patients perceive the ophthalmologist as the most preferred provider of information (1). Oph-

thalmologists are closely involved in monitoring the patients' course of glaucoma and treatment. Because patients regularly visit their specialist, ophthalmologists ideally should undertake repeated patient education (9). The Glaucoma Patient Society and the nurse of the ophthalmology outpatient department may accomplish new roles, for the latter especially in providing the highly needed, individual information about a patient's own condition, disease course, and consequences of glaucoma.

Although only 16% of patients in the present study preferred peer group meetings of glaucoma patients as a source of information, this also deserves consideration. The participants of our focus groups thought it useful and pleasant to exchange knowledge and experiences. Petersson et al have demonstrated this experience in cancer patients (28). Moreover, in meetings with peers patients could be taught to participate actively and to interact with their doctor, which would hopefully lead to better communication between patient and doctor and better ability to remember information. A consultation in which attention is paid to the patient's perceptions and needs has been shown to be more effective to achieve clinical outcome and satisfaction for both patients and doctors than a consultation in which only a standardized amount of information is given (29).

Earlier studies have shown that an education program with a videotape, sometimes supplemented by brochures or interaction with a nurse, have a beneficial effect on knowledge about glaucoma (5, 14, 21). This information might well be given while patients wait for their appointment at the outpatient department (21). It has also been shown that patient education needs to be repeated at regular intervals to maintain its effectiveness and should involve relatives (7, 14).

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