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Educating the glaucoma patient*

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SUMMARY Forty-nine patients with open-angle glaucoma and 32 controls were studied at each of 2 medical centres, one in California and one in England. A 12-point questionnaire was answered before, immediately after, and 6 months after viewing a 6 minute video film about glaucoma. The English glaucoma patients and controls showed lower initial knowledge than their American counterparts. Immediately after the film all groups had substantially improved their knowledge by answering 78–88% of the questions correctly. Recall study showed that both American groups had retained more than their British counterparts and that glaucoma patients retained more knowledge of their disease than did controls. The use of an educational video film in an outpatient setting is a simple and economical method of patient education applicable to both American and British subjects with open-angle glaucoma.

Much written material in the form of pamphlets or brochures on ophthalmic disease is available for educating patients as well as the general public.[1 2] In addition television presentations and films have been used extensively to educate physicians and medical students as well as the public.[3 4] The amount of public exposure to communications relating to ophthalmology appears to be increasing. However, to the best of our knowledge no investigation has been undertaken to evaluate systematically the ability of the material to educate the audience for whom it was intended.

It is the purpose of this paper to describe a study in which glaucoma patients and controls at each of 2 medical centres, one in the English Midlands and one in Northern California, were shown a videotape about glaucoma. The usefulness of the tape in educating the viewers about this disorder is evaluated.

Materials and methods

A 6-minute videotape about chronic open-angle glaucoma was produced in the Department of Instructional Media, Stanford University Medical Center. The audio portion was delivered by an American narrator. A 12-point questionnaire (Table 1) was given to 98 patients with chronic open-angle glaucoma and 64 controls. Half of the glaucoma patients and half of the controls were studied at Stanford University Medical Center, Stanford, California, and the other half of each group at the Leicester Royal Infirmary, Leicester, England. The questionnaire was administered immediately before, immediately after, and 6 months after viewing the videotape. The questionnaire was administered by author J.Z. at Stanford University and by author J.T. at the Leicester Royal Infirmary. The patients were questioned in person before and immediately after the film. Telephone interview was employed to ask the questions 6 months after viewing. All answers

Table 1 *Questionnaire concerning glaucoma*

Questions
1 Does glaucoma affect vision early in the disease?
2 How is vision ultimately affected?
3 Can glaucoma cause blindness?
4 What goes wrong in an eye that develops glaucoma?
5 What usually happens in an eye with glaucoma as time passes?
6 Are your relatives more likely to get glaucoma than the average person?
7 What do your medicines do for your glaucoma?
8 How long will you need to take the medicines?
9 Can the medicines become ineffective for your glaucoma?
10 Is there a place for surgery in the treatment of glaucoma?
11 When is the surgery performed?
12 What does the surgery do for the glaucoma?

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were given in verbal form. At the time of the showing of the film the patients were not told that they would be questioned 6 months later. In the recall study 2 glaucoma patients from each of the British and American groups could not be contacted, and 3 controls from both the British and American groups were unavailable for retesting.

The 49 glaucoma patients were chosen consecutively from the Glaucoma Clinic at Stanford University Medical Center during 1978–9. The English glaucoma patents were matched by age and sex to the Stanford patients from a pool of over 100 patients who attended the Glaucoma Clinic at the Leicester Royal Infirmary. All glaucoma patients had a diagnosis of chronic open-angle glaucoma and were on medical treatment.

The 32 controls from Stanford were chosen randomly from the outpatient General Medical Clinic. They had to meet the following criteria: (1) no history of ocular disease (except refractive problems), (2) no diabetes mellitus, and (3) no family history of glaucoma. The 32 controls from Leicester, chosen from the inpatient orthopaedic wards, were matched for age with the Stanford controls and had to fulfil the same criteria for entrance into the study. Though all the American controls told us they had no family history of glaucoma prior to entrance into the study, on recall examination 3 of them related that in fact there was a history of glaucoma in the family. Their scores were included in the analysis as they were in line with the scores of the other members of the group.

None of the patients studied had any significant hearing problems or difficulties with the English language which would interfere with their ability to understand the audio portion of the television tape.

QUESTIONNAIRE (Table 1)

For analysis the 12 questions were divided into 4 categories of 3 questions each. The first 3 questions dealt with effects of glaucoma on vision; questions 4 through 6 related to pathophysiology and familial tendency; questions 7, 8 and 9 dealt with medical therapy of glaucoma; and the final 3 questions related to the role of surgery in the treatment of glaucoma.

PATIENTS STUDIED

A summary of the demographic characteristics of the 4 groups of patients studied is displayed in Table 2. Note that the mean and median ages of the 4 groups were roughly comparable. The age ranges were also comparable except that in the American patient group one 13-year-old was included. The American and British glaucoma patients and the American controls were roughly 50% male and 50% female, while the British controls were predominantly female.

Table 2 *Demographic data of subjects studied*

	Glaucoma patients		*Controls*	
	American (n=49)	*British (n=49)*	*American (n=32)*	*British (n=32)*
Age (years)				
Median	66	66	64	58
Mean	66	69	62	63
Range	13–94	36–59	42–81	38–90
Sex (percentage)				
Male	51	51	44	25
Female	49	49	56	75
Racial background (percentage)				
Caucasian	88	94	91	100
Negro	10	6	9	—
Oriental	2	—	—	—
Educational background (percentage)				
High school	47	67	62	62
College+	53	33	38	38

The great majority of the patients in all 4 groups were Caucasian. The educational backgrounds of the British glaucoma patients and controls and the American controls were similar (about one-third had a college education), while the American glaucoma patients had a higher percentage with college education. (>50%).

The 2 groups differed in the length of time since glaucoma was diagnosed: 39% of the British patients had glaucoma more than 10 years, 10% between 5 and 10 years, 16% between 1 and 5 years, and 35% less than one year. In contrast only 12% of the American patients had been so diagnosed more than 10 years, while 27% had the disease between 5 and 10 years, 37% between 1 and 5 years, and 24% less than one year.

Results

Table 3 displays the change in mean test scores of the various groups of patients who were shown the film in terms of percentage of questions answered correctly

Table 3 *Mean test score as percentage of questions answered correctly**

	Before film	*Immediately after film*	*Six months later*
Glaucoma patients	*n=49*	*n=49*	*n=47*
American	64	88	80
British	48	78	66
Controls	*n=32*	*n=32*	*n=29*
American	40	85	59
British	23	79	49

*Total number of questions=12.

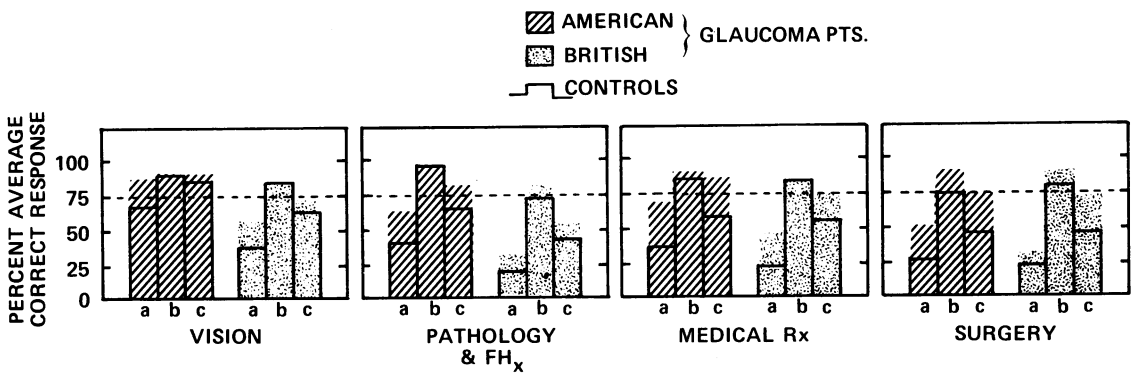

Fig. 1 *Change in test scores when responses are grouped into question category.* a=*Score before viewing.* b=*Score immediately after viewing.* c=*Six months later.* FH_x=*family history.* R_x=*treatment.*

by each group. Note that the American groups scored higher than their British counterparts prior to viewing the film. Immediately after seeing the film all groups had significantly improved their knowledge to approximately the same level ($p<0{\cdot}001$). The improvement observed was not significantly different between the American and British groups. Recall study 6 months later showed that both American groups had retained more knowledge than their British counterparts and that both glaucoma groups retained more knowledge of their disease than did their respective controls. A significant drop in knowledge was observed in all 4 groups ($p<0{\cdot}001$), though the difference between American and British groups was not significant. Stratification by age revealed similar trends in the 4 groups studied.

Fig. 1 graphically illustrates the change in scores of the various groups who viewed the film when the responses are grouped into question category. In this figure the scores are charted as the average correct response in each category when equal weight is given to each question. If one arbitrarily assumes that an acceptable level of knowledge of each question category is represented by 75% of the patients answering the questions correctly, one can see that the showing of the film uniformly increased the average correct response to above this level. The only exception was the American glaucoma patients' knowledge on the questions relating to vision, in which 80% of the patients knew the answers before the film showing. In each category the American patients and controls both knew more and recalled more information than their British counterparts, and in all categories both American and British patients recalled more than their respective controls.

Discussion

A short videotape is a simple, economical, and time saving method by which glaucoma patients may be educated about their disease in an outpatient clinic setting. It was gratifying to find that patients from both teaching units were able to learn from viewing the film. Even though the English patients did not have as high an 'educational background' as their American counterparts and knew less about their disorder prior to seeing the film, viewing of the film substantially improved their knowledge to similar levels reached by the American glaucoma patients after they had viewed the tape. If one arbitrarily chose 75% as a passing grade, all 4 groups of patients 'failed' immediately before and 'passed' immediately after viewing the film (Fig. 1). In addition the film was successful in improving the knowledge about glaucoma in all 4 subject areas in all 4 groups of patients studied. The observation that the controls improved their knowledge to levels similar to that of the glaucoma patients leads one to believe that the film should also be successful as a means of educating the public about this disorder.

The recall aspect of the study confirmed that patients who have a chronic illness have a special interest in their disease and hence remember more than individuals not so afflicted. This was true in both the American and English groups studied. Why both American groups recalled more than their English counterparts is not really understood, though one might imagine that the American narration or differences in the educational background of the groups might have been factors.

Not only is education important for its own sake, but improved knowledge can be used effectively in affecting compliance in patients with chronic glaucoma. In double-blind controlled studies it has been shown that use of a patient instruction and tailoring programme by eye clinic staff markedly improved compliance to pilocarpine therapy.[5,6] We are currently evaluating the most efficient and easiest method of influencing compliance to glaucoma therapy, studying a variety of educational methods.

In an outpatient setting with a busy clinic staff it is not usually possible to spend enough time teaching glaucoma patients about their disease. Moreover, teaching each new glaucoma patient about his/her disorder involves a degree of repetition and for many physicians ultimately becomes a chore. In these circumstances a videotape may play a useful role in informing patients about their disorder. The major disadvantage from an educational point of view is that the tape cannot be taken out of the clinic and reviewed at home because all homes do not yet have video recording machines.

Another problem not addressed by this study is how often one must repeat the film to reinforce the knowledge about glaucoma. Because of the lifetime nature of the disorder and the demonstration that patients' knowledge decays significantly 6 months after viewing some means of reinforcement is undoubtedly required. To help solve this problem one might provide an accompanying brochure to be given to the patient at the time of viewing which would serve to reinforce the material covered in the film.

Finally, it should be emphasised that almost all the patients responded positively to the showing of the film. They were pleased to learn what hitherto had not been explained to them and were grateful for the opportunity to view the tape. We had the clinical impression that the doctor-patient relationship had benefitted from the educational experience.

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