Organisms were isolated from 32 patients—31 of the organisms were *Staphylococcus aureus* and one was β-haemolytic streptococcus. Sensitivity tests showed that cloxacillin was the only antibiotic out of eight tested to which all were sensitive.

Complete resolution was effected in 90% of cases. There was relative failure of treatment in 8% and absolute failure in 1.6%.

I wish to thank Professor R. Roaf and Mr. G. E. Thomas for allowing me to carry out this trial and for their helpful criticisms of the text. I am grateful to Dr. J. Ellwood for his help with the bacteriological investigations. I also wish to thank Beecham Research Laboratories Ltd., who provided the Orbenin for this trial.

REFERENCES

Dennison, W. M. (1952). *Glasg. med. J.*, **33**, 16.
Harris, N. H. (1960). *J. Bone Jt Surg.*, **42B**, 535.
Kirker, J. R (1953). Ibid., **35B**, 507.
Mann, T. S. (1963). *Brit. med. J.*, **2**, 1561.
Mercer, Sir Walter (1964). *Hosp. Wld, Special Orthopaedic Supplement*, November 1.
Neligan, G. A., and Elderkin, F. M. (1965). *Brit. med. J.*, **1**, 1349
Trueta, J., and Morgan, J. D. (1954). *Brit. J. Surg.*, **41**, 449.
Winters, J. L., and Cahen, I. (1960). *J. Bone Jt Surg.*, **42A**, 691.

Association of Diabetes and Cataract*

R. McGUINNESS,† M.D., B.CH.

Brit. med. J., 1967, 2, 416–418

Cataract is one of the commonest causes of registration for blindness in England and Wales (Sorsby, 1966). The association of diabetes and cataract in older age groups is a subject of great controversy, but is perhaps stronger in younger persons (Chodos and Habbeger-Chodos, 1960).

Method

A survey was undertaken in two stages:

1. The lens-opacity state of a sample of the general population was assessed on the slit-lamp microscope with full pupillary dilatation (Hollows *et al.*, 1965). As a result of this, four main groups were defined: group 1, no lens opacities; group 2, cortical opacities, subdivided into two types—(A) senile wedges and plaques, and (B) juvenile clubs; group 3, nuclear lens opacities; and group 4, aphakic (excluding traumatic aphakia) or mature lens opacity. The lenses were also graded according to nuclear colour.

2. From group 1, subjects were selected to match as nearly as possible for age and sex those in groups 2–4.

The resultant sample consisted of 374 persons of the general population of the Rhondda Fach whose age and sex distribution showed a slight excess of older age groups when compared with the Medical Research Council census figures for this area (see Table I). Of this sample 340 (91%) were examined.

TABLE I.—*Age Distribution of Population Studied*

Age	Males						Females					
	Census		Sample		Seen		Census		Sample		Seen	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
40–49	715	33·7	54	32·5	51	33·1	821	32·3	63	30·3	57	30·7
50–59	726	34·3	59	35·5	56	36·4	789	31·0	59	28·4	53	28·5
60–69	527	24·9	37	22·3	32	20·8	688	27·0	58	27·9	50	26·9
70–74	151	7·1	16	9·6	15	9·7	248	9·7	28	13·5	26	14·0
Total	2119		166		154		2546		208		186	

Patients were visited by a member of the Medical Research Council staff, and if they agreed to undergo the tests were asked to fast from 10 p.m. the night before the morning of the test. The majority of tests were carried out in the person's home or place of work. A fasting venous blood sample was taken and 50 g. of liquid glucose (Beecham Foods) given by mouth. A short questionary was asked regarding family history of diabetes and cataract and any possible relevant illness. The subject was allowed to continue normal daily routine, and two hours later a capillary blood sample and a urine sample were obtained.

Blood sugar was estimated by the method of Hoffman (1937) adapted for use on autoanalysers (S.D. of method ±1.5 mg./100 ml.). Glycosuria was assessed with Clinistix strips, any blue coloration after repeat testing being counted as positive.

Results

From Table II the mean fasting blood sugar is seen to be almost equal in all lens-opacity groups for males. For females the mean levels are seen to be equal in all groups except group 4, where the number of results available is small.

TABLE II.—*Fasting Blood Sugar in mg./100 ml.*

Age		Group 1	Group 2A	Group 2B	Group 3	Group 4
Males						
40–49	Mean	78·6 (34)	74·0 (1)	81·2 (9)	89·6 (7)	-
	S.D.	12·9		8·3	15·9	
50–59	Mean	80·8 (32)	78·3 (10)	82·6 (12)	72·0 (2)	—
	S.D.	16·6	5·3	16·4		
60–69	Mean	88·8 (9)	90·3 (16)	81·6 (5)	—	92·0 (2)
	S.D.	4·8	16·3	7·3		
70–74	Mean	88·3 (3)	86·9 (10)	93·0 (1)	—	78·0 (1)
	S.D.	21·0	10·0			
Females						
40–49	Mean	84·7 (31)	101·5 (2)	83·1 (16)	83·9 (7)	101·0 (1)
	S.D.	7·5		14·4	10·2	
50–59	Mean	92·2 (28)	101·1 (7)	85·6 (14)	122·3 (3)	104·0 (1)
	S.D.	39·6	40·1	12·0	73·3	
60–69	Mean	100·4 (21)	95·6 (17)	104·4 (10)	—	189·5 (2)
	S.D.	56·0	27·1	40·1		
70–74	Mean	97·0 (3)	100·6 (17)	68·0 (2)	90·0 (1)	128·7 (3)
	S.D.	7·6	25·7			53·3

Table III shows blood-sugar levels two hours after 50 g. of glucose challenge. The readings for males are seen to be almost equal in all groups of lens opacity types and almost equal to the fasting blood sugar levels. The readings for females are also similar to the fasting values and are not significantly different between the various groups except in group 4, where the readings are very much higher than in the other groups. The numbers in this group are too small for a test of significance. The mean blood-sugar level at two hours for all ages in group 4 combined is 173 mg./100 ml.

Frequency distribution graphs were constructed (see Chart) of the readings of group 1, representing persons without lens opacities, against the readings of groups 2–4 combined, representing persons with lens opacities. No difference can be seen between persons with and without lens opacities.

* This work forms part of an M.D. thesis submitted to the University of Wales, 1966.

† Medical Research Council's Epidemiological Research Unit (South Wales), Cardiff.

The mean blood-sugar level for males, both fasting and at two hours, shows a peak at 70 mg./100 ml., falling to a low frequency at 120 mg., and the distribution of blood-sugar levels two hours after glucose challenge shows a marked skew towards higher levels, the highest results being in persons without lens opacities. For females the peak blood-sugar level, both fasting and at two hours, is at 80 mg., falling to a low frequency at 120 mg. A marked skew is shown towards higher levels both of blood-sugar for fasting and two hours after glucose challenge, with more persons having lens opacities in the highest part of the range.

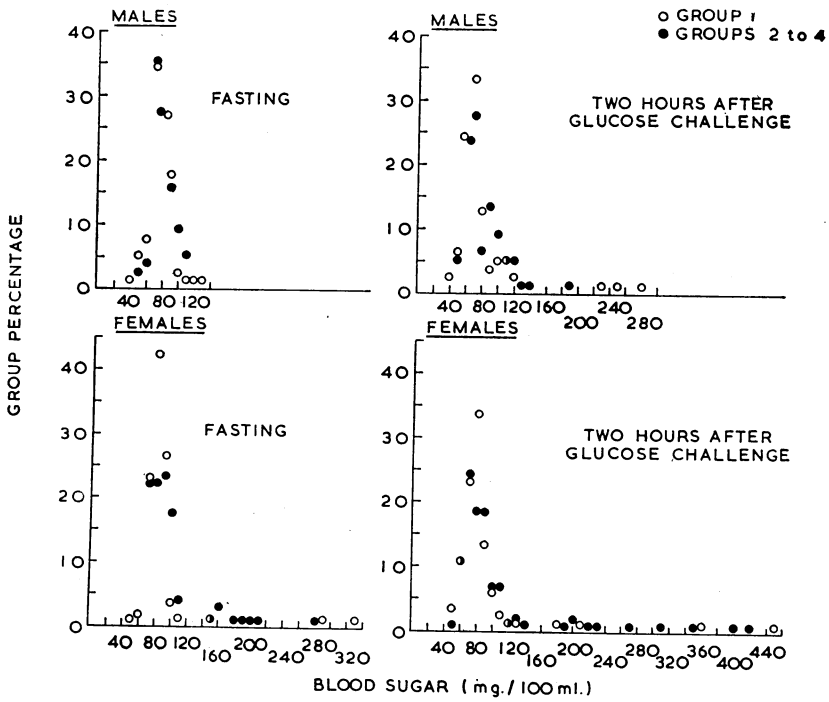
TABLE III.—*Blood Sugar in mg./100 ml. Two Hours after Glucose Challenge*

Age		Group 1	Group 2A	Group 2B	Group 3	Group 4
			Males			
40–49	Mean	75·1 (34)	188·0 (1)	75·6 (9)	76·7 (7)	—
	S.D.	15·3		10·1	11·3	
50–59	Mean	92·2 (32)	73·1 (10)	80·2 (12)	68·0 (2)	—
	S.D.	56·1	9·8			
60–69	Mean	83·1 (9)	88·2 (16)	84·0 (5)	—	82·0 (2)
	S.D.	17·2	24·6	27·3		
70–74	Mean	90·0 (3)	95·8 (10)	93·0 (1)		65·0 (1)
	S.D.	33·4	20·8			
			Females			
40–49	Mean	83·8 (31)	98·5 (2)	82·8 (16)	79·3 (7)	116·0 (1)
	S.D.	13·3		33·1	5·6	
50–59	Mean	94·5 (28)	113·3 (7)	84·3 (14)	189·7 (3)	70·0 (1)
	S.D.	55·2	88·5	17·1	182·2	
60–69	Mean	109·3 (21)	109·3 (17)	119·2 (10)	—	261·0 (2)
	S.D.	87·5	48·6	83·2		
70–74	Mean	83·3 (3)	107·3 (17)	64·5 (2)	71·0 (1)	168·7 (3)
	S.D.	9·5	39·9			93·8

Mean fasting blood sugars for males were group 1 81.1 mg., groups 2–4 combined 82.5 mg., and two hours after glucose challenge, group 1 83.6 mg., groups 2–4 combined 84.3 mg. Mean fasting blood sugars for females were group 1 91.7 mg., groups 2–4 combined 96.8 mg., and two hours after glucose challenge, group 1 93.8 mg. and groups 2–4 combined 105.9 mg.

When those with or without lens opacities are compared there is no significant difference in blood-sugar level in response to glucose challenge. However, females with lens opacities show a significantly greater response ($0.01>P>0.001$) to glucose challenge than do males with lens opacities.

Glycosuria was found to be present in 19% of group 1 and 21% of groups 2–4 combined for males, and 11% of group 1 and 15% of groups 2–4 combined for females.



Blood-sugar levels in those with lens opacities (●) and controls (○).

A family history of diabetes was obtained in 5% of group 1 and 4% of groups 2–4 combined for males, and 10% of group 1 and 13% of groups 2–4 combined for females.

When the blood-sugar results were categorized according to the nuclear colour of the lens no increase in response to glucose challenge was noted with increasing nuclear colour.

With a diagnostic level for diabetes of 200 mg. two hours after glucose challenge the overall prevalence of diabetes for this population was 4.7% (1.9% male population, 6.5% female population).

All of the diabetics in the male population were in the non-lens-opacity group, but for females the proportion of diabetics in each subgroup was group 1 3.7%, group 2A 9.1%, group 2B 2.4%, group 3 18.2%, and group 4 28.6%. (The last two groups were numerically smaller than the others.)

If a diagnostic level for diabetes of 120 mg. is adopted then again no difference can be seen between persons with and without lens opacities. The overall prevalence of diabetes is now 8.8% (6.5% male population, 10.5% female population).

Discussion

The literature on the prevalence of cataract in diabetic patients and of diabetes in cataract patients is on the whole confusing, as even elementary precautions in standardizing methods of examination and selection of controls are ignored by many authors.

It would appear from the literature that the association of diabetes and cataract formation is much stronger in young diabetics (Chodos and Habegger-Chodos, 1960) and may be related to poor control of the diabetic state (Marr, 1952). The association of diabetes with morphologically senile cataract is, however, not so clear. Anthonisen (1936) found a higher prevalence of diabetes in persons coming to hospital for cataract extraction than in the general population of Denmark. Caird *et al.* (1964) also came to this conclusion and noted that the diabetes tended to be of long duration and poor control. Andersen (1924) and Waite and Beetham (1935), using slit-lamp microscopy with age- and sex-matched controls, found no greater prevalence of cataract in diabetics than in their controls. Dollfus (1954) found a significantly higher prevalence of cataract in hospital diabetic patients below the age of 45 years but found no difference in the prevalence in the older age groups. Hospital patients are, however, a specially selected group, and the application of these observations to the general population of diabetics may not be justified.

The present study is the first to have examined the prevalence of diabetes in a representative sample of a population assessed for lens opacity state by slit-lamp microscopy with full pupillary dilatation.

The prevalence of diabetes in the Rhondda study is perhaps higher than that found by other surveys, such as those of Walker and Brown (1964) at Ibstock, where the prevalence of diabetes was 1.8%, and by the Diabetes Working Party Survey of the College of General Practitioners (1962), 1.3%. The figures, however, are in fair agreement with those of Butterfield (1964) at Bedford, especially as the population studied in the Rhondda was aged from 40 to 74 years and showed an increase in response to glucose challenge with age, as did Butterfield's survey, the methods and criteria used in this survey being identical to those of Butterfield.

No difference was seen between the prevalence of diabetes in persons with or without lens opacities. However, females who had either a mature cataract or had had a cataract extraction

seemed to show a greater response to glucose challenge than the other female groups. The numbers in the present group are too small for the significance of this observation to be assessed, and further study is required. It is possible that the diabetic with lens opacities may progress to a stage requiring cataract extraction more rapidly than a non-diabetic. This might explain the discrepancy between the lack of correlation in this survey and the reports of increased prevalence of diabetes in patients admitted for cataract extraction.

Summary

The prevalence of diabetes in a sample of 340 persons of the general population of the Rhondda Fach was not found to differ in persons with and without lens opacities.

Persons with and without lens opacities show no significant difference in blood-sugar response to glucose challenge. Females with lens opacities show a greater response to glucose challenge than males with lens opacities.

It would appear that diabetes is not such an important cause of lens opacity formation in the general population as was previously thought, but persons with a diabetic tendency may develop lens opacities progressing to a stage requiring cataract extraction more rapidly than non-diabetics. Further studies to investigate this point are in view.

My thanks to Professor A. L. Cochrane and Mr. P. A. Graham for advice and criticism of this study; Professor J. Butterfield, of Guy's Hospital, for facilities to perform the blood-sugar estimations; Dr. H. Campbell for statistical advice; Mr. F. Moore for drawing the figures; the staff of the Epidemiological Research Unit, Cardiff, for help in visiting the patients; and Beecham Foods for supplying the oral glucose preparation.

REFERENCES

Andersen, C. L. (1924). *Acta ophthal. (Kbh.)*, **2**, 250.
Anthonisen, H. (1936). Ibid., **14**, 150.
Butterfield, W. J. H. (1964). *Proc. roy. Soc. Med.*, **57**, 196.
Caird, F. I., Hutchinson, M., and Pirie, A. (1964). *Brit. med. J.*, **2**, 665.
Chodos, J. B., and Habegger-Chodos, H. E. (1960). *Surv. Ophthal.*, **5**, 129, 264.
Diabetes Survey Working Party (1962). *Brit. med. J.*, **1**, 1497.
Dollfus, M. (1954). *Bull. Soc. Ophtal. Fr.*, 67, 62.
Hoffman, W. S. (1937). *J. biol. Chem.*, **120**, 51.
Hollows, F. C., McGuinness, R., and Graham, P. A. (1965). Unpublished.
Marr, W. G. (1952). *Amer. J. Ophthal.*, **35**, 577.
Sorsby, A (1966). *Reports on Public Health and Medical Subjects*, No. 114, Incidence and Causes of Blindness in England and Wales, 1948–62. H.M.S.O., London.
Waite, J. H., and Beetham, W. P. (1935). *New Engl. J. Med.*, **212**, 367, 429.
Walker, J. B., and Brown, P. E. (1964). *Lancet*, 2, 246.

Preliminary Communications

Treatment by Prostatic Injection of Acute Urinary Retention due to Prostatic Hyperplasia

Brit. med. J., 1967, 2, 418–419

Adenomatous enlargement of the prostate may lead to distressing urinary symptoms and progressive damage to the urinary tract by interference with the flow of urine. The orthodox treatment of this abnormal prostatic enlargement is to remove a portion of it via the suprapubic, retropubic, or transurethral route. The operation may be described as major, particularly if the patient is aged and has a bad chest or heart, is in a uraemic state, or the urinary tract is badly infected.

A simple injection treatment to relieve retention of urine due to adenomatous enlargement of the prostate was used by Sir James Roberts in India, and this method was used by Talwar and Pande (1966) with remarkable results. In this technique the prostate is injected through the perineum with 2 to 3 ml. of solution containing the following ingredients: carbolic acid 10 min. (0.6 ml.), glacial acetic acid 10 min. (0.6 ml.), glycerin 20 min. (1.2 ml.), distilled water to 1 oz. (28 g.). This solution is sterilized by autoclaving for 15 minutes at a pressure of 15 lb./sq. in. (1.05 kg./sq. cm.), but alternatively can be sterilized by boiling for half an hour.

The composition of the solution suggests the possibility of complications occurring, such as abscess formation, fistula, and stricture of the urethra. In the series described by Talwar and Pande no such incidents occurred. This paper describes a series of patients similarly treated.

MANAGEMENT

The patients were admitted with acute or acute on chronic retention of urine. The history, clinical examination, and laboratory and radiological investigations were undertaken in the routine manner. The retention of urine was relieved immediately or gradually, depending on the diagnosis of acute or acute on chronic retention.

The prostate was injected during the first three days in hospital, the following technique being used: The patient was placed in the left lateral position and the prostate injected with 2 to 3 ml. of the solution, a 20-gauge lumbar puncture needle being used. A preliminary injection of local anaesthetic was made in only one of our patients. The injection is not painful. A finger placed in the rectum acts as a guide. The needle point requires repositioning if pain is felt down the penis or blood can be aspirated into the syringe. If no resistance

Details of Cases

Case No.	Age	Coincident Diseases	No. of Injections	Month During 1966	Complications	Last Seen
1	81	Brain-stem ischaemia	1	July	Nil	February 1967
2	80	Emphysema, hypertension	2	June	"	" "
3	72	Bronchitis, emphysema	1	Nov.		" "
4	73	Cardiac failure	1	July		January 1967
5	85	Cardiac failure, emphysema	1	June		February 1967
6	77	Cardiac failure, bronchitis	1			Died of heart failure August 1966
7	75	Endogenous depression	3	Nov.		February 1967
8	87	Bronchitis, emphysema	6	May		January 1967
9	67	Myocardial infarction, emphysema, bronchitis	1	Aug.		December 196.
10	83	Hypertension	1	"		" "
11	71	Emphysema, ? carcinoma of lung	2	"		January 1967
12	55	Nil	1	Jan.		" "
13	76	Parkinson's disease, pneumonia, poor urinary control	4	Nov.	Poor urinary control	February 1967
14	54	Carcinomatosis	2	Sept.	Nil	Died of secondaries, November 1966
15	72	Cardiac failure	2	Oct.		Died of heart failure November 1966
16	77	Bronchopneumonia	3	Dec.		February 1967
17	86	Chronic bronchitis, perforated diverticulitis	2	Nov.		" "