

# Systematic care of diabetic patients in a general practice

M. T. WOJCIECHOWSKI, MB, MRCCGP

General Practitioner, London

**SUMMARY.** A diabetic clinic looking after 21 patients in a single-handed practice of 2,000 is described. It appeared that systematic care of these diabetics led to earlier detection and treatment of complications, and may have prevented or postponed serious disability. In the long term, a clinic such as this may help reduce practice work-load. Many clinic duties were carried out by a nurse, so that the clinic took up little doctor time. It is concluded that running a diabetic clinic is within the scope of general practice, provided the necessary support is given.

### Introduction

As the population ages, the number of diabetics is likely to increase. Already hospital diabetic clinics frustrate diabetic specialists, who feel unable to give patients the full benefit of their expertise because of overcrowding (Hill, 1976). Hospital clinics also frustrate diabetics because of time spent travelling, the hours of waiting and because they rarely see the same doctor twice (Wilkes and Lawton, 1980). A recent study in a group practice found that only half the known diabetics were receiving regular assessment (either from hospital or general practice), and that those diabetics with complications were no more likely to be followed up than those without (Doney, 1976). Yet good diabetic control is most important in preventing complications in non-insulin dependent as well as in insulin dependent diabetics (STENO Study Group, 1982). Good control leads to reversal of the increased glomerular filtration rate in early diabetic nephrosclerosis. Data from the Whitehall study have shown that ophthalmoscopically visible microvascular retinal disease was confined to men showing a blood sugar greater than 11.1 mmol/l two hours after a 50 g oral glucose load (Sayegh and Jarrett, 1979).

A diabetic clinic rather than special appointments during ordinary surgeries was chosen for the following

reasons: it would enable us to have an attached diabetic nurse who did a work-up on each patient prior to seeing the doctor; it would be simpler to organize practice facilities for weighing, blood sampling, urine and eye testing; it would be easier to keep account of patient attendance; it would be easier for the doctor to adhere to a diagnostic check-list; it would be possible for the patients to get to know each other and discuss problems (Russell *et al.*, 1974); and it would be possible to use a tape-slide machine in the waiting room for patient education.

This paper describes and evaluates the first eight months of a clinic (up to the time the writer left the practice) which was set up by a general practice trainee in a single-handed practice of 2,081 patients, 80 per cent of whom were from one colliery village in the Upper Afan Valley, 10 miles from the nearest District General Hospital.

### Aims

The care of the chronically ill is an important part of the general practitioner's work and the project was designed with the following aim: to achieve earlier detection and treatment of the complications of diabetes by the introduction of systematic care for diabetics.

### Methods

There were 21 diabetics, four insulin dependent (IDD) and 17 non-insulin dependent (NIDD). Eleven were treated by diet alone. Seventy-six per cent were from social classes IV and V. Most of the diabetics were already identified by colour-coded tags on the spines of the A4 records; the rest were discovered by monitoring repeat prescriptions.

Five to six patients were invited to each clinic, which was held monthly at the health centre and staffed by a doctor, an attached diabetic nurse (ADN) and a dietician. The Health Authority made the ADN available for two sessions per month, one for organization and domiciliary follow-up, the other for clinic duties. She had no special training.

At every clinic the ADN weighed the patient, tested urine for glucose, protein and acetone, enquired about smoking and measured blood glucose with an eyetone meter, noting the time of last eating. At six-monthly intervals, alternating from one eye to the other, the patient had one pupil dilated with one drop of 1% cyclopentolate hydrochloride. Annually she measured visual acuity (with Snellen chart and optician's pinhole), blood pressure, pulse and watched the diabetics test their own urine. She entered all measurements in the 'co-op booklet' (Hill, 1976), which was kept by the patient and brought to all medical interviews. The booklet also contains information for diabetics on subjects such as foot care and driving.

The patient was then assessed by the doctor, who enquired about hypoglycaemic attacks and general well-being (including sexual function) and took blood for glycosylated haemoglobin (Hb A<sub>1c</sub>) estimation (*British Medical Journal*, 1980). At six-monthly intervals the patient had one fundus examined by the doctor through the dilated pupil. Once a year vibration sensation and pulses were tested in the feet. Every five years the doctor ordered a full blood count, urea, chest x-ray and ECG.

Great emphasis was placed on follow-up. The ADN kept a card index system (McCormack, 1976) which indicated those diabetics who were expected at each clinic. Patients who missed their appointment were contacted by the ADN, who visited if a second appointment was missed.

Hospital referral was indicated on the basis of criteria agreed with the local specialist as follows: if visual acuity deteriorated suddenly or was worse than 6/12 (with pinhole); if background retinopathy or new vessels around the disc were discovered; if gangrene was detected or ulceration/infection was uncontrolled; and in any case of doubt after seeking the specialist's advice.

From the outset, the diabetic clinic at Glyncorrwg aimed at being a prevention clinic. NIDD patients were informed that diet was the most important aspect of their treatment—66 per cent of NIDD can regain normal glucose tolerance after six months of dietary treatment alone (Doar *et al.*, 1975). High-carbohydrate, high-roughage, low-fat diets were recommended for all diabetics, as this type of diet results in improved control of blood glucose and patient tolerance of such a diet is good (Simpson *et al.*, 1979). Prescription of oral hypoglycaemic agents shifts the emphasis from diet and exercise. Regular exercise improves glucose tolerance, weight control and sleep (Keen *et al.*, 1979); it lowers LDL cholesterol and increases HDL cholesterol (Lopez *et al.*, 1974), the latter being low in NIDD (Kennedy *et al.*, 1978). Cigarette smoking is one of the most important risk factors (Royal College of General Practitioners, 1981), and by the time this study began, only two of our diabetics still smoked.

Education was emphasized by all clinic staff. IDD patients were encouraged to borrow the practice 'eyetone' meter at weekends or to buy a 'Glucochek'

Active interventions (total patients = 10\*).

Problem and action taken	Number of patients	Comments
Admission to hospital	3	Stabilization of diabetes (2 patients). Jaw wiring for obesity.
Eye problem discovered and referred	3	Glaucoma. Iridocyclitis. Neovascularization (photocoagulation therapy).
Foot problems discovered and referred to chiropodist	5	Prevention and/or treatment of ulceration.
Thyrototoxicosis	1	
Total problems	12	

\*Only two of the 10 patients complained of symptoms or signs related to their problem(s).

meter of their own. Home blood glucose monitoring may lead to an improvement in control, with fewer hypoglycaemic episodes (Sönksen *et al.*, 1978). IDDs and their relatives were supplied with and taught how to use glucagon for hypoglycaemic attacks. During clinics a tape-slide machine played British Diabetic Association (BDA) programmes in the waiting room. The patients' library contained BDA recommended books. The six-monthly evening meetings held at the health centre for discussion and health education films were attended by about half the diabetics and their relatives.

### Results

Eighteen of the 21 diabetics attended two or more clinics over eight months, and made an average of three visits per patient per year. Only three out of the 21 diabetics did not attend.

During the eight months 10 out of the 21 received active medical intervention to prevent serious deterioration of their health. The Table shows that eight out of these 10 were not complaining of symptoms or signs related to their problem and had not requested an appointment with a medical practitioner. Three patients were admitted to hospital, one of whom was later referred to a chiropodist because of foot ulceration. Three patients were referred with eye complications and four others were referred to a chiropodist; one of this last group was later discovered to be thyrotoxic.

### Discussion

Although many diabetic clinics are either in operation in general practice or in the process of being set up, a substantial number of general practitioners are still unconvinced of their merit. Others are worried about the extra time and money that might be involved, and

about whether or not they have the necessary expertise. These points are discussed below in the light of the Glyncorrwg clinic.

As four fifths of diabetics are non-insulin dependent, and the basis of their treatment is diet and exercise, the doctor's job is to stimulate the patients' interest in their own treatment and to monitor diabetic control and complications. To learn the few skills required, close co-operation with and back-up from the senior hospital staff is usually needed. During the first few clinics a general practitioner might receive personal help from a hospital diabetologist (Russell *et al.*, 1974; Hill, 1976).

General practitioners cannot be expected to take on a large number of hospital diabetics without support. As is demonstrated by the Table, rapid access to chiropody services is needed. General practitioners should not only have access to dieticians and chiropodists but should be encouraged to use them—it is often difficult to start using a service that one has previously had to adapt to doing without. A nurse provided by the local authority makes a large difference to the work-load at the clinic, and can solve many problems by visiting patients' homes. One of her functions is follow-up, the importance of which is illustrated by a recent survey (Wilkes and Lawton, 1980) in which 20 per cent of diabetics discharged to their general practitioners from a hospital clinic thought they had been discharged because they were cured, even though they had been given careful briefing at the clinic before discharge.

A small amount of equipment is also needed, but these items can often be obtained as donations from charities, such as local branches of the British Diabetic Association. It is to be hoped that the NHS will soon see the need to supply necessary items.

During eight months of follow-up, 10 of the 21 diabetics at Glyncorrwg received active medical intervention to prevent serious deterioration of their health (see Table), yet only two out of these 10 came complaining of symptoms or signs related to their problems. All these patients were regular attenders at ordinary surgeries and their problems were discovered in the clinic only because of systematic questioning and examination. It is not possible to say how far deterioration would have progressed and become irreversible by the time the patient actually complained. In some cases (for example, glaucoma) progression would have led to deterioration in the quality of life for the patient and the family. This finding suggests that one merit of the diabetic clinic is the prevention of deterioration in the quality of life by early treatment of complications. Furthermore, early treatment of complications by preventing serious disability may in the long term reduce practice work-load, thus offsetting some of the demands the clinic makes on a doctor's time.

Extra time is needed to run a clinic, but in our case this was less than two hours per month. We feel that diabetics are such a high-risk group than an average of

five minutes per day for prevention and treatment is efficient use of a doctor's time.

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## Acknowledgements

I wish to thank Dr R. D. Hill of Poole General Hospital; Dr C. E. Upton, general practitioner, Poole; Professor P. H. Sönksen, Endocrinology Unit, and Dr C. J. Watkins, General Practice Unit, St. Thomas's Hospital Medical School; Dr L. A. Ruben, general practitioner, Stockwell Group Practice, London; and Professor J. G. R. Howie, Department of General Practice, Edinburgh, for their kind advice and support.

Special thanks to Sally Sangford, Dietitian, Neath General Hospital, and Anita Harris, Attached Diabetic Nurse, Glyncorrwg.

And lastly, thanks to my trainer, Dr Julian Tudor Hart, without whose encouragement and support this project could not have come about.

## Address for reprints

Dr M. T. Wojciechowski, Kentish Town Health Centre, 2 Bartholomew Road, London NW5 2AJ.