Why blind diabetics with renal failure should be offered treatment

C T FLYNN

Abstract

During May 1978 to April 1983 this renal dialysis unit treated 65 patients by continuous ambulatory peritoneal dialysis. Of these, 24 had type I (insulin dependent) diabetes, of whom 20 were blind; eight had type II (non-insulin dependent) diabetes, of whom three were blind; and 33 did not have diabetes and were not blind. The cumulative actuarial survival rates of these patients at five years were 60% for blind diabetics, 40% for sighted diabetics, and 46% for the non-diabetics. Of the 23 blind patients, 22 successfully achieved self care, including the self administration of insulin into the peritoneal dialysis solution. Blind patients had the least peritonitis and fewest complications of continuous ambulatory peritoneal dialysis, and none objected to the treatment or requested to be taken off it or be allowed to die.

It was concluded that blind diabetic patients with renal failure showed both the will and the ability to stay alive and that their treatment was worth while.

Introduction

In the United States most diabetic patients who develop end stage renal disease are offered treatment. This is not so in Britain, where dialysis is restricted even for non-diabetic patients.¹ Controversy over the availability of treatment appeared in the *BMJ* in July 1981.^{2,3} In the study of deaths from chronic renal failure under the age of 50² blindness was given as the first reason for not offering treatment. I therefore present observations on the long term treatment of blind diabetics with end stage renal disease in the United States.

Patients and methods

Our renal dialysis unit is situated in the centre of Iowa and receives patients from a wide catchment area. When end stage renal disease is diagnosed the patient is offered haemodialysis, peritoneal dialysis, or renal transplantation, none of which are regarded as mutually exclusive.

Since May 1978 we have treated 32 diabetic patients by continuous ambulatory peritoneal dialysis, of whom 24 had type I (insulin dependent) and eight type II (non-insulin dependent) disease. Twenty type I and three type II of these patients, respectively, were either legally⁴ or totally blind. The first blind patient did very badly on haemodialysis and intermittent peritoneal dialysis, but improved and did well on continuous ambulatory peritoneal dialysis, the exchanges being performed by her husband. When he died unexpectedly the patient was determined to perform the exchanges of dialysis fluid herself and, working with the medical team, a technique for coping was developed. Her success was so convincing that all new blind patients were introduced to her and then trained in self care if they chose that treatment. As new patients were trained they were also invited to speak to untrained patients.

Modifications for the blind diabetic—Blind patients must be able to identify all the various containers in which the supplies come.

Individual packages, such as gloves, povidone iodine swabs, and gauze squares, must also be identifiable, and how to open and use them has to be learnt. Using special guides, insulin must be drawn from a phial and injected through a medication port. Changing the spike to a new bag is accomplished wearing sterile gloves, so that the spike can be touched while directing it into the second port. The drained fluid has to be measured so that the patient knows how much to drink, and Braille markers on cylinders or weight scales are also used.

Training programme—A special clinic for training all patients in continuous ambulatory peritoneal dialysis was established, the team comprising full time nurses, a social worker, a renal dietitian, and the physician. Using the same basic approach we evolved programmes for training the non-diabetic, diabetic, and blind diabetic patient. Patient care plans were developed.⁵ Each blind patient was assessed for mental acuity, motivation, and coping skills. The degree of support offered by other family members was also assessed. Most patients were fully trained before a peritoneal catheter was inserted. Family members participated in training, which included "hands on" identification and use of a model, videotapes, large pictures, and Braille. Each step in the exchange procedure was repeated until the patient was confident.

Review procedure—All patients were subject to regular medical review. All data relevant to each patient were reviewed monthly at a meeting attended by the physician, nurses, social worker, and dietitian. At least once a year progress was assessed by the team with the patient and relative present. Each month the patient attended the clinic for relevant blood tests and physical measurements (weight, blood pressure, etc) while fasting.

Clinic staff (whole time equivalents) comprised nurses, 3; dietitian, $\frac{1}{2}$; social worker, $\frac{1}{2}$; and ward clerk, $\frac{1}{2}$.

Results

Survival—The figure shows the cumulative actuarial technique survival rates of the non-diabetic, sighted diabetic, and blind diabetic patients. Blind patients had the best technique survival rate and the smallest drop out rate for complications related to treatment.

Peritonitis—The blind patients consistently had the lowest incidence of peritonitis. At the end of the study period blind patients were having peritonitis at a rate of one episode every 99 weeks, sighted patients one episode every 43 weeks, and non-diabetic patients one episode every 56 weeks.

Cumulative actuarial survival rates of blind and sighted diabetics and non-diabetics. Data are equivalent to technique survival.

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Quality of life—Two paediatric patients were excluded from the assessment of quality of life. The age ranges and average ages of the remaining patients in the three groups were: blind patients 25–64 years, average 40.4; sighted diabetic patients 31–63 years, average 46.7; non-diabetic patients 18–84 years, average 53.0. From the records a detailed summary of each patient was prepared and discussed by a conference of doctor, nurses, social worker, and dietitian. No specialised psychological data were used other than a detailed familiarity with each patient and closest relative. We agreed that continuous ambulatory peritoneal dialysis had not been worth while in eight non-diabetic patients and four sighted diabetics. Reasons varied but included patient resentment, recurrent peritonitis, failure to achieve self care, failure to achieve a satisfactory level of wellbeing, and early failure of the technique, causing the treatment to be abandoned. By contrast, we considered that continuous ambulatory peritoneal dialysis had been worth while in all the blind patients. One blind patient remained depressed but continued to do the exchanges himself without difficulty and refused to return to haemodialysis. Only one blind patient could not manage self care, because of neuropathy and dependency. His wife found continuous ambulatory peritoneal dialysis much less demanding on her than bringing him for haemodialysis, and so we considered the treatment worth while. For the rest of the blind patients the conclusion was positive. All returned to their previous employment, home making, or studying full time and functioned at the same level as before becoming ill with renal failure.

Other aspects of treatment—Biochemical and physical changes, blood sugar control, complications other than peritonitis, and variations in blood pressure are detailed elsewhere.⁵

Discussion

All the patients in this series were offered treatment and chose continuous ambulatory peritoneal dialysis. Most of them had received haemodialysis and all were considered for transplantation. Having chosen continuous ambulatory peritoneal

dialysis, most of the blind patients achieved exemplary self care over extended periods. No better demonstration of a strong will to live, a keen interest in their own wellbeing, and a wish not to burden others could be asked of any patient. These patients obviously needed excellent training by skilled nurses and continuing support by the medical team. In return the team received much professional satisfaction.

Probably the apathy and depression of blind diabetics with renal failure arise from their belief that they are thought of as hopeless cases. Any lingering sentiment that blindness in itself contraindicates treatment paralyses the doctor-patient relationship, to which I can testify, from the evolution of my own attitude. Of far more importance in inhibiting treatment in Britain must surely be the shortage of facilities and staff. There are many valid reasons for withholding treatment in diabetic patients with multiple complications, but when the blind patient chooses to have treatment it usually proves worth while.

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Response of pulmonary circulation to oral pirbuterol in chronic airflow obstruction

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Abstract

The effects of the oral beta agonist pirbuterol on pulmonary haemodynamics and gas exchange were studied in nine patients with severe irreversible airflow obstruction and moderate arterial hypoxaemia. After administration of 15 mg pirbuterol pulmonary vascular resistance fell by 19% but cardiac output rose by 24%, so that pulmonary arterial pressure showed no significant change. Systemic arterial oxygen pressure fell by 7%,

limiting the rise in oxygen delivery to 21%. All changes were significant at the 2% level.

These results show that pirbuterol dilates the pulmonary bed at the cost of a slight worsening of gas exchange, which is compensated by an independent rise in blood flow.

Introduction

In patients with chronic airflow obstruction pulmonary hypertension is a bad prognostic sign.¹⁻⁴ Long term oxygen treatment reduces mean pulmonary artery pressure in these patients, and in less severely affected patients oxygen improves the prognosis.^{5,6} Probably the oxygen acts by reversing hypoxic vasoconstriction. If so, other pulmonary vasodilators that are easy to administer long term might have the same effect. We therefore studied the effects of the acute administration of oral pirbuterol on pulmonary haemodynamics and gas exchange in nine patients who had severe airflow obstruction but only moderate hypoxaemia. Pirbuterol is a new beta agonist with both inotropic and vasodilative properties⁷ which has been shown to be a useful adjunct to digoxin and diuretics in left heart failure.⁸⁻¹¹

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