PERSONAL PRACTICE

Inpatient psychiatric treatment for diabetic teenagers

Leo Kroll, Mike Shaw

Coping with diabetes is difficult for teenagers.^{1,2} It is a time of transition when cognitive, physical, and emotional development results in teenagers not only achieving a degree of independence from their families, but also the formation of their adult personalities. There is often conflict over issues of parental control and amount of freedom as teenagers prepare for independence, though most families handle this delicate transition phase remarkably well. Handing over responsibility for diabetic control to teenagers can be difficult, especially if the parents or teenager have psychological problems. Often adolescents take an oppositional stance towards advice given by parents and professionals, leading to poor control. How the adults react can lead to an escalation of behavioural, emotional, and diabetic problems, or to their resolution. Sometimes an explosive mixture is generated leading to cycles of repeated diabetic crises and hospital admissions.³ There are reviews of how psychosocial and biological factors affect diabetes and of the various psychological treatments for patients with diabetes with poor control.^{4,5} Educational programmes have been used with varying success,⁶ and psychological treatments for adults include relaxation therapy,⁷ individual therapy,⁸ group psychotherapy,⁹ and family therapy.¹⁰ The use of inpatient psychiatric treatment is rarely reported, however.^{11,12} Europe and America have residential centres for children with brittle diabetes,¹³ where children may live for a number of years; these homes have marked differences in the degree of psychological input, their style of management, and cost.

We describe our management of four adolescents who received inpatient psychiatric treatment after psychological problems led to a life threatening crisis in their diabetic management (table 1).

Case reports

CASE A

Case A was a 13 year old girl admitted with a five month history of hypoglycaemic episodes (some causing convulsions) that were thought to be self induced. An empty insulin bottle was found in her locker. She had persistently

denied insulin misuse. Concurrent with repeated hypoglycaemia were reports of blurred vision, bone pain in her arms, leg weakness, and an associated loss of sensation.

During the two years before admission she had had good reagent strip results, but her glycated haemoglobin (HbA1) concentrations had been persistently high. More recently her parents reported that she had been bullied at school and they had decided to move house so she could attend her new school.

On investigation none of these symptoms nor her unstable diabetic control was found to have an organic cause.

Case A developed diabetes at the age of 2 and for most of her childhood she had been an unusually compliant and undemanding child. Her father had died of diabetic complications when A was 10 months old, and her mother had become depressed after his death. She remarried and had one son from this second marriage.

At presentation, A was guarded and truculent. She reported physical symptoms and was depressed. Her parents were extremely concerned and fully acknowledged the possibility of insulin misuse and remained supportive towards their daughter. They showed a consistent approach over diabetic management and issues of discipline, education, and home life. There were major difficulties for A and her mother in discussing diabetes and the death of A's father, however.

Treatment consisted in individual sessions for A and family meetings which included discussion of the death of A's father. A behavioural programme was required to contain verbal and occasional physical aggression towards peers and staff.

Her somatic disorders varied in severity and type, and in a way that was inconsistent with an organic explanation. Discussion of her symptoms led to a turning point when she acknowledged that her blurred vision and sensory loss in her legs mirrored aspects of her father's terminal illness (gangrene in the legs and retinopathy). She was then able to admit taking extra insulin and reveal her fear of suffering her father's fate. A year since admission A is more direct with her mother and others. She has been more outspoken at home and in the clinic. There have been no

Forensic Adolescent
Unit, Prestwick
Hospital, Manchester
L Kroll

Stepping Stones,
Cotswold House,
Sutton Hospital,
Cotswold Road,
Sutton, Surrey
SM2 5NF
M Shaw

Correspondence to:
Dr Shaw.

Table 1 Additional clinical data for the patients studied

	Patient			
	A	B	C	D
Psychiatric diagnosis	Depression and abnormal illness behaviour	Depression and self harm	Conduct disorder	Conduct disorder
Length of admission (months)	8	8	8	9
HbA1c (%) at admission*	14.2	7.6	18.0	9.3
HbA1c (%) on discharge	10.9	11.8	12.1	Unavailable
Time since discharge (years)	1	4	6	3
Days in hospital with diabetic problems during year before treatment	45	0	51	12
Days in hospital with diabetic problems during year after treatment	2	0	1	11

*HbA1c: normal range 4.0–7.6%; control is satisfactory if concentrations are less than 10%.

further episodes of insulin misuse and her diabetic control is adequate.

CASE B

This 12 year old girl took a potentially lethal overdose of insulin after an argument with her mother. She was admitted to the local hospital but did not have any serious medical complications.

On assessment she gave a history of a moderate depressive illness for the last two years. In this period she had stolen food and money from home and had often argued over diabetic management with her mother and the diabetic nurse. There were also arguments when she asked for more independence to visit friends, go to parties, and go on supervised holidays without her parents. B perceived her mother as intrusive and controlling.

Her mother reported being depressed from the time of B's birth. She said she had experienced nausea and vomiting throughout her pregnancy and had taken drugs for this. She felt guilty and thought that it might have caused B's diabetes.

Case B's diabetes had started at the age of 3 years, and she developed grand mal epilepsy at 5 years. The parents thought that the epilepsy was due to her diabetes and they were concerned that poor diabetic control would lead to poorer control of her epilepsy.

The family lived on an isolated farm and had little contact with relatives and few friends. B had a 14 year old sister who was quiet, obedient, and seemingly content at home. The father was reserved and distant from the emotional and practical needs of his wife and daughters. He was not involved directly with B's diabetic management.

Case B was the most outgoing member of the family; despite her low self esteem and poor confidence she wanted to make friends with her peer group and other adults. She was managing well at school, but psychological

testing on admission showed that she had a specific reading disorder that made understanding written material difficult.

On admission B was depressed and lacked confidence and belief in herself. Her mother was also depressed, anxious, and over involved with her daughter. Both parents attributed B's depressed mood to high blood sugars.

The emphasis in treatment was to promote the development of B's confidence and independence. Initially, some brief behavioural therapy was needed for B's oppositional stance to insulin administration and blood sugar testing.

Case B was popular with both her peers and staff. She made steady progress and gained confidence in the ward. She showed an aptitude in music and art and these media were used in therapeutic work. Although progress was slow she gradually became more assertive and creative. Family therapy and individual therapy for B's mother helped her mother's depression to resolve and helped the family support each other, allowing B to be more independent.

Since discharge her diabetic control has been satisfactory. She has not suffered depression again and has maintained her confidence and her interests. This is despite developing mild obesity and hypothyroidism. Her relationship with her parents has improved, and she has left home to go to college.

CASE C

Case C was a 15 year old diabetic boy admitted on a place of safety order. He was made a ward of court, directing him to be placed on the ward for psychiatric treatment. The admission and court order was necessary because of concerns over his mother's management of C's diabetes.

He had been diabetic for nine months. Initially, control had been good, but then he started to have severe hypoglycaemic episodes needing admission. Despite extensive guidance, education, and monitoring by the diabetic team his diabetic control continued to deteriorate; on one occasion his mother had resorted to using a bucket of cold water to try and rouse him from a hypoglycaemic coma; on another she had sought help only after a long delay. C's behaviour had also deteriorated; he ran away from the paediatric ward, refused

Table 2 Criteria for psychiatric admission of diabetic teenagers

- 1 Poor diabetic control closely related to a disturbance in the child's psychological functioning or in the parent-child relationship
- 2 Repeated crises in diabetic control unresponsive to paediatric admissions supported by child psychiatric input
- 3 Life threatening metabolic crises or chronic poor control placing the child at risk of early diabetic complications

to eat, and refused to go to school. He was oppositional towards staff and verbally aggressive.

Case C was an only child of a widowed mother. His father was described as intelligent and wealthy and had brought up C until his death seven years previously. He had not allowed his wife to be involved in this parenting. Since his death, C's paternal uncle had lived in the family home and had tried to copy the role and parenting style of C's father. C's mother idealised her dead husband and seemed preoccupied with memories and religious matters.

Educationally C was of average intelligence, although his mother preferred to think of him as bright. He had missed significant schooling even before developing diabetes and had spent most of the time at home with his mother and uncle.

Case C's mother had become increasingly fatalistic in her attitude towards her own and C's health; she had hypothyroidism, but did not comply with treatment. C's uncle had a poor understanding of diabetes, particularly the dynamics of diabetic control, and he held strong and inflexible views about diabetic management. It was felt that the parental beliefs made it impossible for C to assert his own opinions or to manage his diabetes independently.

Case C's admission was opposed by his mother and uncle. They were unable to acknowledge the seriousness of C's condition and felt that the court order was unjust. The task in treatment was not only to establish C's independence and sense of autonomy from his parents, but also to engage the family and help alter some of their fatalistic and unrealistic beliefs.

Case C was very opposed to eating, helping on the ward, and managing his diabetes. A behavioural programme using tokens in exchange for privileges enabled a sense of control to develop as C gained privileges for competent management and appropriate behaviour on the ward. Family work focused on issues of parental and individual responsibility. The difficulties surrounding the entrenched attitude of the uncle decreased once C and his mother's sense of autonomy began to grow.

After discharge the repeated paediatric admissions stopped and C managed his diabetes independently and attended all clinics on his own. Five years later he lives away from home and has a successful work record.

CASE D

Case D, a 13 year old boy, was admitted because his parents were unable to manage his aggressive behaviour and control his diabetes. He had been diabetic since the age of 18 months and his control had always been poor. Before admission he had stopped taking insulin, and was not following any diet.

There was long history of antisocial behaviour, including aggression at home and at school. He had been at boarding school for a

year where, although his behaviour had been aggressive, his diabetic control had been satisfactory. At home, however, there was no adherence to a diet, no record keeping, and inconsistent administration of insulin. He spent most of the school holidays attending the hospital ward, though not requiring admission. His HbA1 was 9.3% before admission, and was thought to represent satisfactory control achieved at school.

Psychiatric admission was necessary not only to deal with worsening diabetic control, but also due to escalating levels of violence at home. On one occasion he had chased his mother around the house with an axe.

Case D had been conceived unexpectedly; his nearest sister was 13 years older. The family were well known to social services. Two daughters had been placed in care in the past because of alleged sexual abuse by the father. The family were poor, had received little education, and the father had convictions for violence and theft.

Both parents had health problems. D's father had poorly controlled diabetes with renal complications; his mother had an isolated deteriorating visual disorder and was registered blind.

On admission D was aggressive and angry. He was not depressed or anxious about his situation, and was not concerned about his diabetic control. He parents were ambivalent about admission, but agreed to it. They had a poor understanding of diabetic management and were disorganised and inconsistent in setting rules about behaviour. D's mother tended to manage D's behaviour by agreeing to his demands and offering money or presents to placate him.

Management was based on setting firm and consistent behavioural limits and the parents gradually came to see this approach as the way forward. D was clearly aware that diabetes offered an opportunity to control others, and repeatedly tested his parents' limits. There were high levels of disruptive and aggressive behaviour and attempts to abscond. With time he became more cooperative over diabetic management and his behaviour became acceptable.

On discharge he was returned to his original boarding school. This special school catered for children with medical problems. D quickly became violent and aggressive, however, and had to be removed. He was then placed at a residential school for behaviourally disturbed boys. They were able to provide a firmer structure and D settled in quickly.

The year after discharge there was little change in the rate of paediatric admissions, but in the following two years they decreased sharply. Three years later, his diabetes is generally better controlled at home and at school (though far from satisfactory). He refuses advice and blood tests, however, and does not keep records. He continues to show antisocial and risk taking behaviour, such as riding a motorbike without helmet, insurance, or licence.

Inpatient treatment

The patients discussed here were admitted to a psychiatric inpatient unit catering for children and young teenagers. The ward accommodates about a dozen patients and has its own school. Most children attend five days a week and go home to their families at weekends. The parents are closely involved in all aspects of the children's treatment. They help set and review the goals of the admission, take part in family therapy, and may be offered individual or marital therapy. The children receive a variety of individual therapies, including behavioural, music, art, play, or verbal therapies. Each child and family have a treatment programme to suit their particular needs. The special nature of the inpatient unit allows a combination of approaches to be used in a coordinated and intensive way.

The ward milieu is of special importance to the treatment process. It allows the teenager's emotional and behavioural difficulties to be addressed in a variety of everyday settings. There may be problems over settling at night, getting up in the morning, eating, going to school, taking drugs, or being appropriately independent. The nursing staff are able to work therapeutically with these difficulties as they arise. In the daily ward meeting and in other groups, the teenagers receive feedback from their peers. The philosophy of the ward is to provide a consistent, secure, and stimulating environment in which youngsters can develop an appropriate degree of control over their lives and a sense of self worth.

Liaison between diabetic and psychiatric professionals

The unit is located in a children's hospital where there is a team with a special interest in diabetes. The team is headed by a paediatrician and includes a paediatric diabetes nurse specialist, a dietitian, a social worker, and a child psychiatrist. The psychiatrist attends diabetic outpatient clinics regularly and sees families there or on the paediatric ward. Children with particular problems are usually well known to all professionals, and of the four children described here three had received considerable combined paediatric and psychiatric intervention before admission. If a patient is likely to require psychiatric admission, full discussion between the diabetic and inpatient teams takes place before any decision to admit. There are meetings before admission with professionals and the family to provide information on the ward structure and facilities, and to set the goals of admission.

When diabetic teenagers are admitted to the psychiatric ward the diabetic team continue to manage the child's diabetes. The tasks of establishing good control and of encouraging teenagers to be responsible for blood tests and insulin administration rely on close liaison between the two teams. The paediatric diabetes nurse specialist provides this essential link. Usually she is familiar with the daily routine of the family and their diabetic management. She liaises closely with the staff

in the planning of behavioural programmes related to eating patterns and insulin administration. All four of these patients needed such programmes with appropriate reinforcers tailored to individual needs.

The teenagers were resident for a considerable time. At present our average length of admission for treatment is four or five months, which has been achieved through the use of focused treatment programmes and outreach home based treatments.

Admission criteria

The decision to admit these four teenagers was based on three main criteria (table 2). There is some overlap and we would expect all three to be met for most patients admitted. Although we would hope to have a working relation with the teenager and their family, in our view this is not necessarily an admission criteria. In the case of C a place of safety order was necessary and teenagers A and D were initially angry and opposed to admission. In all patients, however, a working relationship was eventually established.

Psychological issues and psychiatric disorders

A, C, and D had poor diabetic control. B's HbA1c values were good, but her control was perceived by B as being too restrictive. All four had been inpatients on paediatric wards, but could not be safely contained. C and D had absconded, A was misusing insulin in a dangerous way, and B was depressed and suicidal.

One or both of the parents had a physical, mental, or personality disorder that contributed to the child's problems. Two of the fathers had diabetes and one mother was visually impaired. Three of the mothers were depressed, one father had a sociopathic personality disorder, and another male carer was rigid and unrealistic in his views about diabetic management.

Two of the children were depressed (A and B); the other two had conduct disorder and were caught up in an inappropriate approach taken by parental figures towards their diabetic management. In two patients (A and C) the fathers had died early in their childhood. These deaths were thought to have contributed to the subsequent problems in the children and families.

Diabetic control is affected by teenagers having an inadequate understanding of their illness and its management.¹¹ This was true for several of the patients described, and education formed an important part of their treatment. Education and psychological intervention may complement each other. For example, teaching D and his parents about diabetes proved to be an effective way of helping them to think about discipline.

Diabetic control often deteriorates if teenagers are given responsibility for their diabetes before they have sufficient cognitive abilities.^{14 15} Both C and D had parents who

abdicated responsibility for their sons' diabetes long before the boys could care for themselves. C's mother was too preoccupied and depressed, whereas D's parents were reluctant to stand up to him and made inappropriate concessions. Excessive parental pressure can produce good diabetic control but leave teenagers with poor self esteem or depression.¹⁶ Another study,¹⁷ however, found that high levels of emotional involvement correlate with better diabetic control, but the psychological status of the teenagers was not examined. In B's case, she complied with her mother's over anxious demands, but became depressed. B's low HbA1 on admission suggested tight control. Improvement in her mood and a more independent relationship with her mother was achieved, but at the cost of a slight deterioration in her HbA1 results.

Some styles of coping are known to be associated with poor diabetic control. These include an inability to share fears about the effects of diabetes on the future, a tendency to avoid worrying issues, and poor resolution of conflicts.^{18,19} In case A it was believed that when very young she had tried to come to terms with her father's death due to diabetic complications, and had adapted to her mother's subsequent depression by trying to not upset her mother. In her teens A started to worry that she might die prematurely like her father. Because she felt unable to talk about this fear, she resorted to re-enacting her father's final illness through abnormal illness behaviour.

Conclusion

The four teenagers described clearly benefited from their admission to an adolescent psychiatric ward, leading to improvement in their psychological functioning and a reduction in paediatric admissions. We would like to see

further research in this area, including assessment of the short and long term effectiveness of treatment using appropriate outcome measures.

We are indebted to Dr Piesowicz and Dr Jacobs for allowing us access to the notes, and to T Hatcher for additional details of the cases. We are also grateful for advice given during the writing of this paper by Mr Boys.

- 1 Tattersall R, Lowe J. Diabetes and adolescence. *Diabetologia* 1981; 20: 517-23.
- 2 Hill P. *Adolescent psychiatry*. Edinburgh: Churchill Livingstone, 1989: 247-58.
- 3 Tattersall R. Brittle diabetes. *BMJ* 1985; 291: 555-6.
- 4 Helz JW, Templeton B. Evidence of the role of psychosocial factors in diabetes mellitus: a review. *Am J Psychiatry* 1990; 147: 1275-82.
- 5 Rubin RR, Peyrot M. Psychosocial problems and interventions in diabetes. A review of the literature. *Diabetes Care* 1992; 11: 1640-57.
- 6 Rettig BA, Shrauger DG, Recker R, et al. A randomized study of the effects of a home diabetes education program. *Diabetes Care* 1985; 9: 173-8.
- 7 Feinglos MN, Hastedt P, Surwit RS. Effects of relaxation therapy on patients with type I diabetes mellitus. *Diabetes Care* 1987; 10: 72-5.
- 8 Moran G, Fonagy P, Kurtz A, et al. A controlled study of psychoanalytic treatment of brittle diabetes. *J Am Acad Child Adolesc Psychiatry* 1991; 30: 926-35.
- 9 Tattersall RB, McCulloch DK, Aveline M. Group therapy in the treatment of diabetes. *Diabetes Care* 1985; 8: 180-8.
- 10 Minuchin S, Rosman BL, Baker L. *Psychosomatic families*. Cambridge: Harvard University Press, 1978.
- 11 Orr DP, Golden MP, Myers G, et al. Characteristics of adolescents with poorly controlled diabetes referred to a tertiary care center. *Diabetes Care* 1983; 6: 170-5.
- 12 Buithieu M, Geffken G, Silverstein JH, et al. Evaluation of a residential program for youngsters with insulin dependent diabetes mellitus [Abstract]. *Diabetes* 1987; 36 (suppl 1): 19A.
- 13 Rosenbloom AL. Residential treatment centers in Europe for children and youth with diabetes mellitus. *Clin Pediatr (Phila)* 1983; 22: 760-3.
- 14 Ingersol GM, Orr DP, Herrold AJ, et al. Cognitive maturity and self-management among adolescents with insulin-dependent diabetes mellitus. *J Pediatr* 1986; 108: 620-3.
- 15 Fonagy P, Moran GS, Lindsay MKM, et al. Psychological adjustment and diabetic control. *Arch Dis Child* 1987; 62: 1009-13.
- 16 Close H, Davies AG, Price DA, et al. Emotional difficulties in diabetes mellitus. *Arch Dis Child* 1986; 61: 337-40.
- 17 Stevenson K, Sensky T, Petty R. Glycaemic control in adolescents with Type I diabetes and parental expressed emotion. *Psychother Psychosom* 1991; 55: 170-5.
- 18 Bobrow ES, Ruskin TW, Siller J. Mother-daughter interaction and adherence to diabetes regimes. *Diabetes Care* 1985; 8: 146-51.
- 19 Hanson CL, Harris MA, Relyea GA, et al. Coping styles in youths with insulin-dependent diabetes mellitus. *J Consult Clin Psychol* 1989; 57: 644-51.