Anorexia nervosa occurring in patients with diabetes mellitus

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Summary

Three patients with insulin dependent diabetes mellitus who developed anorexia nervosa are described. Unlike the few cases already reported the patients' diabetes proved very difficult to control with dire consequences in each case.

Introduction

The occurrence of anorexia nervosa in patients with diabetes mellitus has been described as rare (Crisp, 1977; Fairburn and Steel, 1980). In the few cases so far reported a reduction in insulin dosage has usually left the diabetes satisfactorily controlled and in general there have been few adverse consequences of the combination of the two conditions. We report a further three cases of anorexia nervosa in patients with insulin dependent diabetes mellitus. In all three the disordered eating habits made the diabetes difficult to control and were associated with serious complications.

Case histories

Case 1

This patient was found to be diabetic in 1970 at the age of 11 years. In March 1976 her weight reached a maximum of 72.5 kg. At this time she was taking a 100 g carbohydrate diet and a total of 100 u. of highly purified porcine insulin. Her insulin dosage was reduced to 80 u. because of frequent hypoglycaemic episodes and by July 1976 her weight had fallen slightly to 70.0 kg. By November 1977 her weight had dropped to 64.4 kg and she was admitting to a 80 g diet and claiming that she was unable to eat breakfast. Her diabetes remained poorly controlled with both frequent hypoglycaemic episodes and complaints of thirst which were associated with heavy glycosuria.

In September 1979 the patient weighed 62.7 kg and her periods, which had previously been regular, became infrequent and she had only two during the subsequent year. By June 1980 her weight had fallen to 54 kg and she was taking 60 u. of insulin daily. She complained that food made her feel ill and ad-

mitted to a preoccupation with becoming thin as well as to occasional deliberate vomiting. Despite reductions in her insulin dose to 40 u. daily she had two hypoglycaemic episodes which rendered her unconscious and required intravenous dextrose injections.

Following these episodes she refused food and her only significant carbohydrate intake was glucose solutions to correct hypoglycaemia, which occurred despite a reduction in her insulin dosage eventually to only 6 u. daily. Four days after the insulin had been reduced to this level she went into keto-acidotic coma, her blood pH falling to a life-threatening 6.9. She was resuscitated with an insulin infusion and her diabetes was subsequently managed with intravenous dextrose and a continuous insulin infusion. After 2 weeks on this regime coupled with chlorpromazine 450 mg daily she began eating again and could be managed with a conventional twice-daily insulin regime.

Case 2

Diabetes was diagnosed in this girl at the age of 11 years. Her diabetic control appeared unremarkable until, at the age of 17 years, she moved from home to college. She then started alternating between 2% glycosuria (with blood sugars as high as 40 mmol/l) and hypoglycaemia. On two occasions the latter was sufficient to cause convulsions. She admitted that she was trying to lose weight (she weighed 60 kg) and that her diet consisted mostly of orange juice. She admitted also to self-induced vomiting if she ate normal food and stated that this occurred only when she went home to her parents. Despite these measures she remained overweight losing only 3.2 kg. Her periods continued but became irregular. The hypoglycaemic episodes appear to have taken their toll as this patient has now developed typical temporal lobe epilepsy with abnormal EEG discharges in the right temporo-occipital region.

Case 3

Diabetes was diagnosed in this patient at the age

of 8 years. Diabetic control was unstable during childhood and the patient was tried on a variety of different insulins. He often had 'hypoglycaemic' attacks but these episodes were not confirmed in hospital and were apparently treated indiscriminately at home with chocolate and toffee (as 'Mars Bars'). An attempt to control this patient's diabetes at the age of 11 years was frustrated by his mother who took his discharge from hospital complaining of the catering. In 1976 at the age of 18 years the patient weighed 69.2 kg and was taking a total of 56 u. of beef insulin daily. Two years later he weighed 67.2 kg and had become concerned about his weight. So much so that he attempted to drastically cut down his food intake and at the same time reduced the insulin dosage to 26 u. a day. His diet was interrupted by frequent bulimia especially in the evening. Feeling guilty about this he either induced vomiting or exercised by walking or running for several miles. Diabetic control was poor with blood sugars ranging from the hypoglycaemic to in excess of 25 mmol/l. At the age of 22 years the patient developed complications in the form of proteinuria and proliferative retinopathy. Despite laser photocoagulation he suffered a vitreous haemorrhage in his right eye which left him with vision of only 6/36.

Discussion

In these cases the diagnosis of anorexia nervosa has been made on the basis of weight loss, a relentless determination to be thin, the adoption of perverse eating habits in an attempt to achieve this and, in the females, a disturbance of menstruation. According to Beumont, George and Smart (1976) all could be classified as 'Vomitters and Purgers' rather than 'Dieters'. Not all our patients achieved a marked degree of weight loss. This is not unexpected as anorexics who have episodes of bulimia appear to lose less weight (Russell, 1979). The combination of diabetes mellitus and anorexia nervosa has been described as rare by Crisp (1977) and Fairburn and Steel (1980) but as no more or less frequent than expected by chance by Gomez, Dally and Isaacs (1980). However, as diabetics in general come under much closer medical scrutiny than the normal population it is difficult to compare the incidence of anorexia nervosa in diabetics with that of non-diabetics. Indeed, the eating disturbances in our patients may well not have come to light had it not been for the fact that they were diabetic.

It is possible that the relationship between diabetes and anorexia nervosa is more than fortuitous. O'Gorman and Eyre (1980) have suggested that those prone to develop anorexia nervosa are more likely to do so if suffering from diabetes as the latter condition provides a ready means of adjusting their

weight. The association between adolescent diabetes and emotional turmoil is well described (Wilkinson, 1981). Diabetes could, therefore, precipitate or be related to emotional stresses which could then in turn lead on to anorexia nervosa. Furthermore the parents and medical attendants of the young diabetic are particularly vulnerable should abnormal eating behaviour be adopted as a punitive or manipulative measure.

Whatever the reasons for anorexia nervosa and diabetes mellitus co-existing, in the authors' view there is little doubt that this combination can be life-threatening. The heightened sensitivity to insulin (Soman and Felig, 1980), disturbed dietary habits and tendency to over-exercise could all render diabetic control a difficult matter.

However, most of the cases reported previously have been managed without difficulty. In her monograph on eating disorders Bruch (1974) mentioned a 19-year-old diabetic girl with anorexia nervosa. In the main her diabetes was apparently well controlled and no complications were reported. Three cases have been reported by Fairburn and Steel (1980). Two of these were able to maintain diabetic control by a reduction in insulin dosage but the third, who indulged in secret vomiting, had several hypoglycaemic episodes. The patient of O'Gorman and Eyre (1980) abused laxatives but managed to maintain diabetic control by secretly but systematically reducing her insulin as her weight fell.

Gomez *et al.* (1980) reported two cases. In contrast to those mentioned above, the first developed anorexia nervosa some four years before her diabetes presented. Although she remained underweight the diabetes was well controlled. In the second case the diabetes, which was diagnosed when she was 9 years old, led to distress at having to modify her school activities and to a change in her family's attitude to her. When 13 years old this patient took a drug overdose and 18 months later she developed anorexia nervosa. She became subject to recurrent hypoglycaemia and on one occasion had a major convulsion. At the age of 16 years she was found dead in bed of unknown causes. Another case with diabetic complications has been described by Nalkin (1978). This girl developed anorexia nervosa at the age of 15 years having been diabetic for 4 years. As well as dieting she vomited deliberately and so at times became hypokalaemic. Her diabetes became unstable and she developed a proliferative retinopathy when aged 18 years. By the age of 21 years she was almost blind.

Although adequate data were not always available to classify the cases described it appears that diabetic control is poorer in those who deliberately vomit or abuse purgatives. 'Vomitters and Purgers' have been shown to be more likely to have bouts of carbo-

hydrate bulimia (Russell, 1979) and to be more emotionally disturbed (Stonehill and Crisp, 1977; Bhanji and Mattingly, 1981). Unfortunately there is no generally accepted form of therapy. However, some evidence exists to suggest that weight restoration is achieved more rapidly on a medical ward than in a psychiatric unit (Bhanji, 1979) and that as regards psychiatric approaches behaviour therapy is, at least in the short term, more successful than psychotherapy (Bhanji and Thompson, 1974). Of the psychotherapies, family therapy appears to be most effective (Liebman, Minuchin and Baker, 1974).

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