SHORT REPORTS

Quetelet index in diagnosis of anorexia nervosa

The criteria for diagnosing anorexia nervosa vary between authorities, but a considerable loss of weight or a low body weight is considered an important diagnostic criterion. The body weight criterion for anorexia nervosa is stated, in the absence of any physical or psychological illness, to be a loss of body weight of at least 25% of the original body weight or the weight is less than 80% of average body weight.

The criterion of a loss of at least 25% of the original body weight may be faulty because an obese person losing this proportion of her body weight usually does not have anorexia nervosa. The criterion that the person’s weight must be less than 80% of the average body weight for age, sex, and height demands recourse to special tables, which are not often available in general practice.

We believe that the Quetelet index (weight in kilograms divided by height in metres squared) may be a more appropriate measure of body weight. The index has been used to define the boundaries of various grades of obesity and we have used it to define grades of low body weight.

Patients, methods, and results

We calculated the Quetelet index for a series of women diagnosed as having an eating disorder for at least three years. Twenty-three women had anorexia nervosa (diagnosed using Russell’s criteria); six had anorexia nervosa with bulimia, and 16 had bulimia diagnosed using the criteria of the American Psychiatric Association.1 The Quetelet index used was that obtained for each patient when at her lowest recorded weight. We also calculated the Quetelet index of 26 student ballet dancers at a national ballet school, again taking the lowest weight reached as the criterion. Ballet dancers fear becoming fat, exercise rigorously, are preoccupied with their weight, and usually have amenorrhoea. Although in these features they resemble patients with anorexia nervosa, most do not develop the illness.

The values of the index are as follows: < 15 emaciation, 15-18.9 underweight, 19-24.9 normal weight, 25-29.9 overweight, 30-39.9 obese, > 40 severely (morbidly) obese.

The Quetelet indices of patients with anorexia nervosa, anorexia nervosa with bulimia, and bulimia are shown in the figure. All patients whose

that by normal standards the women were underweight. Three of the dancers had reached a Quetelet index of under 15. One had been diagnosed as having anorexia nervosa, but the other two increased their weight after counselling and anorexia nervosa was not diagnosed.

Comment

We suggest that the Quetelet index may be as appropriate a measure of body weight in the underweight and emaciated as it is in the overweight and obese. A Quetelet index of less than 15 in the absence of any physical or psychiatric disorder is strongly suggestive of anorexia nervosa. A further advantage of the index is that it is independent of sex, age, or changing fashions in eating behaviour, and possibly culture.


Sodium bicarbonate and hyperventilation in treating an infant with severe overdose of tricyclic antidepressant

There is no specific antidote for severe poisoning with tricyclic antidepressants. Treatment is supportive, and death is usually caused by cardiac depression or arrhythmias.1 I describe here the use of intravenous sodium bicarbonate and hyperventilation to reverse the arrhythmia in a child who had taken a lethal dose of dothiepin.

Case report

An 11 month old girl weighing 9.7 kg had been given about 13 dothiepin 75 mg tablets (100 mg/kg) by her sister. She had become drowsy, her limbs started to twitch, and she had a generalised convulsion. On admission to hospital one and a half hours later she was comatose and convulsing. Her pulse was 160 beats/min, blood pressure 80/50 mm Hg, respirations regular, and pupils fixed and dilated. Electrocardiography showed sinus tachycardia. Her convulsions were controlled with intravenous diazepam 10 mg and intramuscular paraldehyde 4 ml. She was electively intubated and her stomach emptied.

An hour after admission she suddenly became bradycardic (pulse 50 beats/min, blood pressure unrecordable). The electrocardiogram showed wide QRS complexes (see figure (a)). Cardiac massage and assisted ventilation were started. She did not respond to intravenous atropine 0.3 mg. She was given 5 mmol intravenous sodium bicarbonate and 50 ml plasma protein fraction. She required intravenous diazepam 15 mg to control a further convulsion. Blood gas analysis showed hypoxia with metabolic and respiratory acidosis (pH 7.14, carbon dioxide partial pressure 5-7 kPa (42-6 mm Hg), oxygen partial pressure 5-8 kPa (43-5 mm Hg), base excess -14.5 mmol/1, and bicarbonate 13 mmol/1).

Intravenous sodium bicarbonate (10 mmol immediately, 20 mmol over the following hour) was given and hyperventilation started. A further dose

![Graph showing the Quetelet index for patients diagnosed with eating disorders.](http://www.bmj.com/)

The lowest body weights obtained by patients diagnosed as having eating disorder for three or more years.

Quetelet index was less than 15 had maintained a low body weight for at least 12 months or, if readmitted, returned to a low body weight after discharge. These patients had been diagnosed as having anorexia nervosa; six also fulfilled the criteria for bulimia. All the women diagnosed as having anorexia nervosa and bulimia reached their low body weight transitorily. The lowest body weight of patients diagnosed as having bulimia was also only attained transitorily, and their Quetelet index was above 15. The Quetelet index of each ballet dancer was below 19, which indicates

**References**