Eating disorders: the brain, bones and exercise

Eating disorders such as anorexia nervosa and bulimia nervosa present a far greater health problem than is generally acknowledged, and their assessment and management is both complex and challenging. They are characterized by excessive concern with the control of body weight and shape, accompanied by grossly inadequate, irregular or chaotic food intake.

Although eating disorders may affect most age groups and both sexes, they are most common among females between the ages of 15 and 30 years. The lifetime prevalence of anorexia nervosa in females is between 0.5 and 1%, a figure that is consistent across studies in North America and Europe (Striegel-Moore, 1997). Bulimia nervosa has a lifetime prevalence of between 1 and 2% (Striegel-Moore, 1997).

Eating disorders are associated with major physical complications affecting every body system, the consequence of starvation, purging and chaotic eating (Kaplan and Garfinkel, 1993). These include:

- Ovarian and uterine regression and polycystic ovaries, with the potential for reduced fertility
- Delayed gastric emptying, gastric dilatation, and superior mesenteric artery syndrome
- Myocardial decompensation with impaired peripheral circulation, acrocyanosis, peripheral ulceration and mitral valve prolapse
- Dehydration leading to renal tubular damage, renal calculi and partial diabetes insipidus
- Anaemia, leukopenia and thrombocytopenia, hypoproteinaemia and impaired liver function
- Impaired skeletal growth and osteoporosis
- Cerebral cortical atrophy and ventricular dilatation with associated disturbances in both peripheral and central neurological functioning.

The mortality rate from anorexia nervosa has been reported as up to 20%, with a standardized mortality ratio of about 9% (Moller-Madsen et al, 1996). Between one third and one half die from suicide, with severe malnutrition, electrolyte disturbances and cardiac arrest, alone or in combination, being the other common causes of death.

Given the potential severity of the eating disorders, far more attention needs to be paid to both the immediate and long-term physical complications. The three papers in this symposium each address such issues.

The increasing sophistication of neuroimaging techniques has led to a far more detailed study of the associations between eating disorders and brain anatomy and metabolism (Gordon et al, 1997; Christie et al, 1998). Rost and her colleagues present one of the few studies to have used magnetic resonance spectroscopy to investigate the metabolic changes in the brain which appear to be the consequence of nutritional deficiency.

Serpell and Treasure review contemporary knowledge of the pathophysiology and management of osteoporosis in anorexia nervosa. The fracture rate in anorexia nervosa is seven times greater than in community samples.

Exercise is commonly used as a method for achieving and maintaining low weight and is an important protective factor against the development of osteoporosis. However, in those whose bone density is already impaired, exercise is a risk factor for fractures. Clearly monitoring and supervision of exercise is a necessary component of the management of anorexia nervosa, but it is difficult to obtain an accurate account from such patients of how much they take. Abraham and Lovell describe a new instrument for this purpose, the Eating and Exercise Examination. It appears to be useful in both assessment and treatment.

There is a growing and informative literature on the complexities of assessment and management of these challenging conditions. The interested reader is referred to comprehensive texts such as those by Fallon et al (1994), Brownell and Fairburn (1995), Garner and Garfinkel (1997), Hoek et al (1997) and Lask and Bryant-Waugh (1999). HM

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