implications for staff training and morale as well as for more frequent medical assessment.¹⁸

Finally, both health authorities and local authorities are firmly committed to a policy of supporting older people in their own homes for as long as possible. Surprisingly, the results of this third census in Leicestershire show that the proportion of older people in some form of residential care increased little over the past decade. The greater absolute numbers of elderly people have been absorbed by the growing private sector despite a simultaneous collapse of long term provision in the NHS, and this has been widely attributed to the impact of the central government funding system for private residential care. This remains the situation that social service departments will inherit in April 1993, when social services assume responsibility for private care. Managing this situation while at the same time implementing the organisational, funding, and cultural changes that are required must be regarded as one of the foremost challenges facing local authorities.

We thank all the nursing and care staff working in NHS hospitals and homes, local authority homes, and in the private and voluntary care sectors. We were given invaluable help by the directors of nursing services in the NHS hospital units: Miss B Wallam, Mrs P Lucas, Mrs W Elsdon, Mr C Aggett, Mr M Halpin, Mrs K Lockett, and Mrs C Parsons. The cooperation of the Care Homes Associations was vital to the completeness of the study and we are grateful, in particular, to Mrs M Newham (East Midlands Combined Association of Residential Establishments), Mr M R Wilson (Leicestershire Association of Residential Care Homes), Mr T Banbury (Registered Nursing Home Association), and Mr N McKinlay (Leicestershire Health Authority). We are indebted to all the registrars, senior registrars, lecturers, consultants, and research assistants of the university and NHS departments of psychiatry, medicine for the elderly, epidemiology and public health, and public health medicine who gave their time to deliver, collect, and check questionnaires. Mr N Raymond and Mrs C Douglas provided essential support for data

collection and analysis. Thanks also go to Mrs S King, Mrs P Payne, and Mr J Woods of the department of epidemiology and public health.

Financial support for the study was provided by Leicestershire Health Authority.

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(Accepted 2 March 1993)

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BMJ 1993;306:830-1

Leukaemia linked to eating disorders

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Eating disorders are common in industrialised countries. Because of treatment such as intravenous hyper-alimentation many anorectic patients now survive instead of dying from emaciation. Some patients, however, have chronic anorectic symptoms and remain in a prolonged state of malnutrition. Bulimic symptoms may emerge later, increasing the person's physiological and nutritional imbalance. The haematological and immunological aspects of anorexia nervosa have been widely investigated,¹⁻⁵ but to our knowledge a possible connection between eating disorders and leukaemia has not been described. We report on three patients who developed myelocytic leukaemia after protracted eating disorders. None had a history of exposure to excessive radiation or to other potential sources of leukaemia.

Case reports

Case 1—A 20 year old woman, whose body weight had fluctuated from 50 kg in the summer to 60 kg in the winter since she was 16, had developed the habit of vomiting when frustrated. When 23 years old she presented to a psychiatrist with a weight of 40 kg

(height 158 cm). Suspecting hypokalaemia, the psychiatrist performed a blood test, which showed leukaemia. Detailed haematological investigations showed the presence of Philadelphia chromosome, low neutrophil alkaline phosphatase activity, and a high vitamin B-12 concentration. Chronic myelocytic leukaemia was diagnosed and was initially well controlled by chemotherapy. After 10 months, however, a blastic crisis developed, and despite intensive chemotherapy the patient died seven months later.

Case 2—A 22 year old woman began dieting and developed symptoms of anorexia. She presented to a psychiatrist with a weight of 37 kg (height 162 cm), amenorrhoea, mysophobic symptoms, and compulsive hand washing. The results of a blood test were normal. Psychotherapy was started, but though this gradually alleviated her obsessive symptoms, she remained anorectic. At age 27 she developed purpura over her arms and legs, and acute promyelocytic leukaemia (French-American British classification, M3 type) was diagnosed. She was also found to have disseminated intravascular coagulation. Her leukaemia went into remission after chemotherapy, and bone marrow transplantation was planned.

Case 3—A woman who had been overweight since childhood reduced her weight from 75 kg to 48 kg (height 156 cm) by dieting between the ages of 15 and 17. She also developed the habit of vomiting and misusing laxatives. She was amenorrhoeic for about one year and received hormonal treatment from a gynaecologist for several months. From the age of 18 her weight remained stable between 48 kg and 50 kg owing to frequent bouts of bingeing and vomiting. She

was twice diagnosed as having hypokalaemia and anaemia. When 24 years old she noticed prolonged menstrual bleeding. Acute myeloblastic leukaemia (French-American British classification, M1 type) was diagnosed, and she underwent chemotherapy.

Comment

According to the Ministry of Health and Welfare, the mortality from leukaemia in Japan was 1.2/100 000 women aged 20-24 in 1992. Although this is not the prevalence, the figure indicates the rarity of the illness. The patients described in cases 1 and 2 were among 89 patients with eating disorders who were referred to us for psychiatric research on eating disorders. The prevalence of leukaemia among patients with eating disorders seems higher than that in the general population.

We do not suggest that a specific relation exists between a type of eating disorder and a type of leukaemia, but a protracted malnutritional state may affect general systems such as the immune system.

Some research suggests that cellular immunity is decreased in patients with eating disorders,¹ but other results differ.^{2,3} Dowd *et al* suggested that the protein concentration in anorectic people is relatively normal and that this helps to maintain the immune function.² It is not uncommon, however, to find very low protein concentrations in patients with eating disorders, and we have found that the protein and fat contents of the diet of many patients are deficient. Our results suggest that more research is needed on the physiological and immunological changes caused by eating disorders, especially bulimia.

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(Accepted 22 December 1992)

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