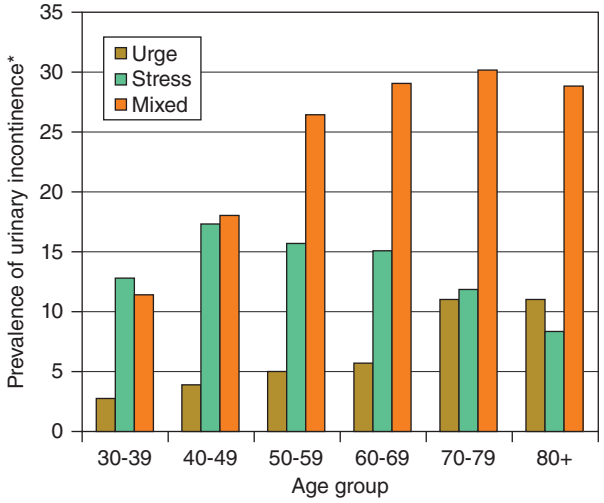

FIGURE 11-18 Rates of urge, stress, and mixed incontinence, by age group, in a sample of 3552 women. *Based on a sample of 3553 participants. *(From JL Melville et al: Arch Intern Med 165:537, 2005.)*

diabetes) or bladder outlet obstruction (prostate hypertrophy in men and cystocele in women). Thus, it is not surprising that the pathogenesis of urinary incontinence is connected to the disrupted aging systems that contribute to frailty, body composition changes (atrophy of the bladder and pelvic floor muscle), and neurodegeneration (both central and peripheral nervous systems). Frailty is a strong risk factor for urinary incontinence. Indeed, older women are more likely to have mixed (urge + stress) incontinence than any pure form (Fig. 11-18). In analogy with the other geriatric syndromes, urinary incontinence derives from a predisposing condition superimposed on a stressful precipitating factor. Accordingly, treatment of urinary incontinence should address both. The first line of treatment is bladder training associated with pelvic muscle exercise (Kegel exercises) that sometimes should be associated with electrical stimulation. Women with possible vaginal or uterine prolapse should be referred to a specialist. Urinary tract infections should be investigated and eventually treated. A long list of medications can precipitate urinary incontinence, including diuretics, antidepressants, sedative hypnotics, adrenergic agonists or blockers, anticholinergics, and calcium channel blockers. Whenever possible, these medications should be discontinued. Until recently, it was believed that oral or local estrogen treatment alleviated the symptoms of urinary incontinence in postmenopausal women, but this notion is now controversial. Antimuscarinic drugs such as tolterodine, darifenacin, and fesoterodine are modestly effective for mixed-etiology incontinence, but all of these drugs can affect cognition and so must be used with caution and with monitoring of cognitive status. In some cases, surgical treatment should be considered. Chronic catheterization has many adverse effects and should be limited to chronic urinary retention that cannot be managed in any other way. Bacteriuria always occurs and should be treated only if it is symptomatic. Bacterial communities isolated from the urine of women with urinary incontinence appear to differ with the type of incontinence; this observation suggests that the bladder microbiota may play a role in urinary incontinence. If so, this microbial population would be a potential target for treatment.

Undernutrition and Anorexia There is strong evidence that the healthy mammalian life span is greatly affected by changes in the activity of central nutrient-sensing mechanisms, especially those that involve the rapamycin (mTOR) network. Polymorphic variations in the gene that encodes mTOR in humans are associated with longevity; this association suggests that the role of nutrient signaling in healthy aging may be conserved in humans. Normal aging is associated with a decline in food intake that is more marked in men than in women. To some extent, food intake is reduced because energy demand declines as a result of the combination of a lower level of physical activity, a decline in lean body mass, and slowed rates of protein turnover. Other contributors to decreased food intake include losses of taste sensation, reduced stomach compliance, higher circulating levels of cholecystokinin, and, in men, low testosterone levels associated with increased leptin. When food intake decreases to a level below the reduced energy demand, the result is energy malnutrition.

Malnutrition in older persons should be considered a geriatric syndrome because it is the result of intrinsic susceptibility due to aging, complicated by multiple superimposed precipitating causes. Many older individuals tend to consume a monotonous diet that lacks sufficient fresh food, fruits, and vegetables, so that intake of important micronutrients is inadequate. Undernutrition in older people is associated with multiple adverse health consequences, including impaired muscle function, decreased bone mass, immune dysfunction, anemia, reduced cognitive function, poor wound healing, delayed recovery from surgery, and increased risk of falls, disability, and death. Despite these serious potential consequences, undernutrition often remains unrecognized until it is well advanced because weight loss tends to be ignored by both patients and physicians. Muscle wasting is a frequent feature of weight loss and malnutrition that is often associated with loss of subcutaneous fat. The main causes of weight loss are anorexia, cachexia, sarcopenia, malabsorption, hypermetabolism, and dehydration, almost always in various combinations. Many of these causes can be detected and corrected. Cancer accounts for only 10–15% of cases of weight loss and anorexia in older people. Other important causes include a recent move to a long-term-care setting, acute illness (often with inflammation), hospitalization with bed rest for as little as 1–2 days, depression, drugs that cause anorexia and nausea (e.g., digoxin and antibiotics), swallowing problems, oral infections, dental problems, gastrointestinal pathology, thyroid and other hormonal problems, poverty, and isolation, with reduced access to food. Weight loss may also result from dehydration, possibly related to excess sweating, diarrhea, vomiting, or reduced fluid intake. Early identification is paramount and requires careful weight monitoring. Patients or caregivers should be taught to record weight regularly at home, the patient should be weighed at each clinical encounter, and a record of serial weights should be maintained in the medical record. If malnutrition is suspected, formal assessment should begin with a standardized screening instrument such as the Mini Nutritional Assessment, the Malnutrition Universal Screening Tool, or the Simplified Nutritional Appetite Questionnaire. The Mini Nutritional Assessment includes questions on appetite, timing of eating, frequency of meals, and taste. Its sensitivity and specificity are >75% for future weight loss of ≥5% of body weight in older people. Many nutritional supplements are available, and their use should be initiated early to prevent more severe weight loss and its consequences. When an older patient has malnutrition, the diet should be liberalized and dietary restrictions should be lifted as much as possible. Nutritional supplements should be given between meals to avoid interference with food intake at mealtime. Limited evidence supports the use of any pharmacologic intervention to treat weight loss. The two antianorexic drugs most often prescribed in older persons are megesterol and dronabinol. Both can increase weight; however, the gain is mostly fat, not muscle, and both drugs have serious side effects. Dronabinol is an excellent drug for use in the palliative-care setting. There is little evidence that intentional weight loss in overweight older people prolongs life. Weight loss after the age of 70 should probably be limited to persons with extreme obesity and should always be medically supervised.

HOW THE AGING PHENOTYPE AFFECTS DISEASE PRESENTATION

Common diseases in older adults may have unexpected and atypical clinical features. Most age-related changes in clinical presentation, evolution, and response to treatment are due to interaction of disease pathophysiology with age-related system dysregulation. Some diseases, such as Parkinson's disease (PD) and diabetes, directly affect aging systems and therefore have a devastating impact on frailty and its consequences.