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A Review of Geriatric Nutrition

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A Review of Geriatric Nutrition

INTRODUCTION

Appropriate nutrition is essential to the physiologic processes associated with growth and maintenance of health; both malnutrition and over-nutrition result in disease. In the United States, the prevalence of malnutrition in the elderly varies considerably among community, hospital, and nursing home settings; statistics place the range from 1% to 60% (lower in community settings and higher in institutional settings). Although comprehensive geriatric assessment is offered in several health care programs, nutritional assessment is surprisingly a major component in only a few. Appropriate nutritional support of the geriatric patient has been shown to improve outcome in the presence of protein energy malnutrition. An approach to nutritional assessment through use of instruments and guidelines is now available.

PHYSIOLOGY OF FEEDING

Feeding is a primal drive. Food intake is regulated by central and peripheral mechanisms; the central basis derives control from feeding and satiety centers located in the hypothalamus. Alterations in opioid receptors in the central nervous system may account for changes in food and fluid preferences with age (eg, decreased liking for fat, cravings for sweets).

The satiety response to food intake is mediated by various factors. Gastric antral distention is associated with a feeling of satiety. Normally, the gastric fundus and body relax during eating to accommodate food. Aging brings a decrease in this adaptive relaxation, and the resultant loss of gastric distensibility leads to early satiety. Additionally, cholecystokinin, glucagon, insulin, and amylin (a hormone co-secreted with insulin by the pancreas) have been associated with satiety in older adults. A decrease in central feeding drive and an increase in peripheral satiety stimuli render older subjects vulnerable to anorexia.^{1,2}

AGE-ASSOCIATED CHANGES IN THE GASTROINTESTINAL TRACT

Although integrity and function of the gastrointestinal tract are well preserved into late age, certain age-

related changes may affect nutritional status in older persons. For the most part, however, age-related physiologic changes in the gastrointestinal tract do not affect absorption of nutrients or drugs to a significant degree.

ORAL CAVITY

Changes in the oral cavity commonly lead to poor dentition and tooth loss, affecting mastication. In the United States, approximately half of the geriatric population do not have their full complement of teeth. This is not an invariable phenomenon related to age; rather it is a result of disease.

Although the taste sensation may become altered, difficulty with taste discrimination is more common. The greatest loss in taste perception is the ability to detect salt; the ability to detect sweet is lost the least. In contrast, olfaction is consistently altered, with an increase in olfactory threshold in 50% of subjects by age 80 years.³ This may lead to decreases in the hedonic qualities of food.

Dysphagia is a common problem; further, there is a high prevalence of asymptomatic impairment of transfer of food bolus from the oral cavity to the pharynx. Muscles of the tongue lose mass and strength with aging, contributing to eating difficulties.

ESOPHAGUS

The upper esophageal sphincter pressure gradually declines with age, and the relaxation of the sphincter associated with swallowing is delayed. Impairment of neuromuscular coordination secondary to decreased myenteric innervation may account for some of these changes.

The onset, speed, and duration of esophageal contractions remain intact in normal aging, and although the amplitude of contractions decreases, the movement of food is unaffected. Nonperistaltic contractions, once considered to be age related, are presently attributed to disease.⁴ Secondary esophageal peristalsis, an important means of clearing refluxed acid, occurs less efficiently, resulting in symptoms of gastroesophageal reflux disease.

STOMACH

Though the secretion of acid in the stomach is not substantially altered with age, pepsin secretion does decrease modestly. A decrease in acid secretion may