Aging Effects on Swallowing Reflex

To the Editor:

Aspiration pneumonia is a common and serious complication, especially among elderly patients. It has been suggested that the progressive loss of protective reflexes (e.g., cough and swallowing reflexes) with age is one of the reasons for aspiration pneumonia, which is often seen in older people. However, the effects of age on the swallowing reflex have not been studied. We examined the swallowing reflex in relation to age in healthy subjects, and compared the results with those in age-matched patients with aspiration pneumonia.

One hundred thirty healthy volunteers (65 men, 65 women) and 54 patients with aspiration pneumonia (33 men, 21 women) were tested. In healthy subjects, those with cardiovascular, respiratory, or nervous system diseases were screened out. The subjects, whose ages ranged from 20 to 84 years, were divided into seven groups based on age decade. Each group consisted of 10 men and 10 women, except for 5 men and 5 women in the ninth decade. In the patient group, each subject had had at least one episode of aspiration with chest radiographic evidence of inflammation in the lower pulmonary segments within 1 year. CT scans revealed various degrees of cerebral atrophy and lacunar infarctions. The patients, whose ages ranged from 51 to 86 years, were divided into four groups as follows: 5 men in the sixth decade, 10 men and 5 women in the seventh decade, 8 men and 8 women in the eighth decade, and 10 men and 8 women in the ninth decade.

To eliminate any diurnal variation in the swallowing reflex, the challenges were done at the same time of day. Each subject refrained from alcohol, sedative, or drug use that affected the autonomic nervous system for at least 72 h before the study. The swallowing reflex was induced by a bolus injection of 1 mL of distilled water into the pharynx through a nasal catheter. The subjects were unaware of the actual injection. Swallowing was identified by submental electromyographic (EMG) activity and visual observation of the characteristic laryngeal movement. EMG activity was recorded from surface electrodes on the chin. The swallowing reflex was evaluated by the latency of response, which was timed from the injection to the onset of swallowing.

The latency of response did not differ significantly among the seven age decades in healthy subjects (p>0.50) (Fig 1). However, the latency of response in the patients was significantly longer in all age decades (Fig 1). It is clear that the steepest change takes place after the seventh decade.

We conclude that the swallowing reflex did not decrease with the advance of age. Therefore, it is unlikely that advancing age explains the impaired swallowing reflex observed in patients with aspiration pneumonia, especially in older individuals.

Hiroaki Kobayashi, MD
Kiyohisa Sekizawa, MD
Hidetada Sasaki, MD, FCCP
Department of Geriatric Medicine
Tohoku University School of Medicine
Sendai, Japan

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The Critical Age That the Young Start the Devastating Habits of Smoking and Narcotics

To the Editor:

People too weak to resist self-indulgence and contemporary stress see through cigarette smoke and emergence of the plague of our age: lung cancer, cancer of the larynx, bronchitis, and coronary disease. Because of the very serious inherent and potential problems of smoking, nations have tried to cope by implementing nonsmoking measures. Agencies that have been placed in charge of the problem must convince every citizen, particularly the young, that cigarette smoke is a carcinogenic substance. The objective of our work was to find the age at which...

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Figure 1. Latent time of swallowing in healthy subjects and patients. Asterisk indicates significant differences between healthy subjects and patients (p<0.01). Bars indicate SEM.

Lawrence P. Cahalin, MA, PT
Marc J. Semigran, MD
G. William Doc, MD
Massachusetts General Hospital
Boston

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