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DEMONSTRATION OF A FOAMY PLUG IN THE MAIN BRONCHUS USING CHEST COMPUTED TOMOGRAPHY

To The Editor: Choking caused by food or sputum is a problem sometimes experienced in frail older people. In such an emergency, there is rarely an opportunity or time to perform computed tomographic (CT) imaging. We report a case in which CT imaging of the chest was useful in detecting the site and components of the obstruction. A 74-year-old man with hypertension and poststroke left hemiparesis was referred to our hospital because of reduced consciousness and dyspnea. He had weak breath sounds in the left chest region and hypoxemia with arterial oxygen saturation (SaO₂) of 76% without hypercapnia with 10 L/min of oxygen administration. Chest radiograph showed elevation of the left diaphragm, suggesting a reduction of left lung volume but no apparent bronchial obstruction. CT of the chest revealed that the left main bronchus and its branches were filled with foamy substances (see Figure 1). Bronchoscopy was immediately performed to remove the obstruction. Consistent with the finding on the CT scan, the left main bronchus was filled with sticky sputum containing food particles. After aspirating and removing the sputum through a bronchoscope, SaO₂ increased to 97% on room air, but consciousness did not occur until hyponatremia was corrected; serum sodium of 121 mEq/L on admission increased to 131 mEq/L 3 days later. Aspiration and sputum accumulation in this case may have been attributable to poststroke hemiparesis

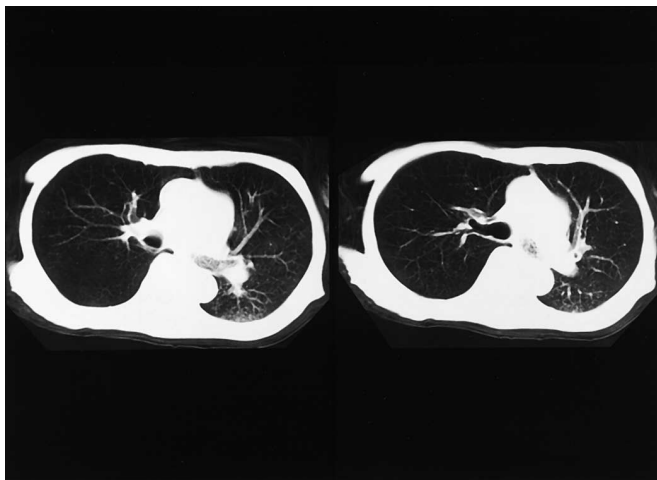


Figure 1. Chest computed tomography scan of the patient showed that the left main bronchus and its branches were filled with a foamy substance.

and disturbance of consciousness, although an episode of massive aspiration was not noted.

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RESTING HEART RATE IN OLDER PEOPLE: A PREDICTOR OF SURVIVAL TO AGE 85

To The Editor: In humans, a strong association between mortality and heart rate (HR) has been reported, especially in men. In younger and middle-aged men, several epidemiological studies have reported that high HR is a predictor of cardiovascular and noncardiovascular mortality,^{1–4} but limited information is available about the role of resting HR in life expectancy and survival to a very old age.

The present analysis included subjects who were examined at our center between 1972 and 1981, were aged 65 to 70 at the time of the examination, were free of severe cardiovascular disease at that time, and had a follow-up long enough to be likely to reach the age of 85 (16–20 years of follow-up depending on the age at the time of study entry; e.g., a 67-year-old individual at study entry must have had a minimum follow-up of 18 years). All individuals who met these criteria were included in the analysis: 1,407 men and 1,134 women. HR was measured using electrocardiogram after 5 to 7 minutes of rest in the supine position and was recorded in the database in one of the following classes: HR1 = less than 60 beats per minute (bpm), HR2 = 60 to 80 bpm, HR3 = greater than 80 bpm. For all subjects, mortality data were obtained for a period extending from the time of inclusion through December 1997 (mean follow-up 18 years).⁴

Analyses were performed separately in men and women. Differences in clinical characteristics and probability of survival to age 85 according to HR levels were studied using a one-way analysis of variance or a chi-square test. Multivariate logistic regression analyses adjusted for age, blood pressure, smoking, and physical activity were performed to evaluate the role of HR on survival to age 85.

This study provides evidence that HR recorded in older men (aged 65–70) has a strong predictive value for survival to a very old age. After adjustment for major risk factors (age, systolic blood pressure (SBP), smoking), men with a HR greater than 80 bpm have a reduced probability, by more than 40%, of reaching age 85 than men of the same age with a low heart rate (<60 bpm) (see Figure 1). No association between HR and longevity was observed in women. The differences found between men and women in this study confirm results found in previous studies,^{3,5,6} which showed a lack of association between HR and mortality, especially cardiovascular disease mortality, in middle-aged women. It is well known that, in general, women have a higher HR than men. Several hypotheses can explain this sex difference concerning the role of HR in mortality. It has been suggested that the mechanisms for elevated HR can differ between men and women.^{7,8} It is also possible that

premenopausal women, because of their hormonal status, are protected from the deleterious effects of elevated HR. Although the present study cannot provide explanations for these sex-related differences, the results show that, even in postmenopausal women, HR is not associated with mortality and longevity, unlike in men of the same age.

Because HR is generally associated with physical activity, the combined effects of these two parameters on survival to 85 years in men were examined. As expected, HR was higher in men who did not participate in physical activity (22% vs 14% of physically active men had a HR >80 bpm). The age-adjusted multivariate analysis showed that, in men, the lack of physical activity (assessed using a self-administered questionnaire) and high HR were independent predictors of decreased survival to age 85. The combination of the lack of physical activity and high HR reduced survival to 85 by 50% (odds ratio = 0.50, 95% confidence interval = 0.36–0.71; $P < .0001$). Recommending regular physical activity in older individuals may be of major importance, because subjects who are physically active show increased longevity, which is partially related to the lower HR of these subjects.

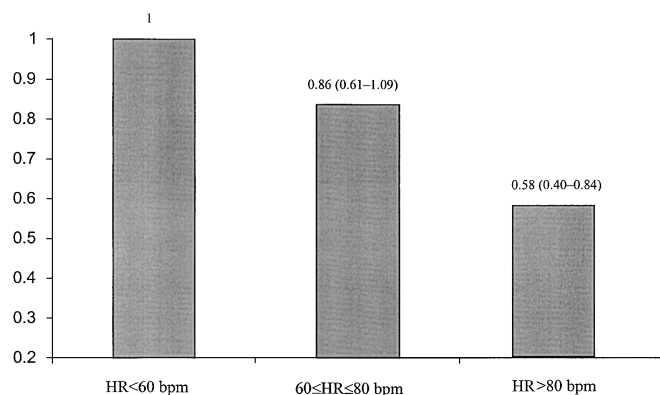


Figure 1. Risk ratio (95% confidence interval) of survival to age 85 in men in the different heart rate (HR) groups, after adjustment for age, systolic blood pressure, and smoking. HR <60 bpm was the reference group (risk ratio = 1).

With the exception of tachycardia greater than 120 bpm, the value of HR in the evaluation of long-term prognosis has been underestimated, especially in older subjects. The results of the present study indicate that, in men in their late 60s, a heart rate greater than 80 bpm significantly reduces the chances of reaching very old age. Heart rate should therefore be taken into account in older men when evaluating their overall health status.

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