ACE Inhibitor and Swallowing Reflex

To the Editor:

Angiotensin-converting enzyme (ACE) inhibitors have been shown to have beneficial effects such as antihypertension, vasodilator in congestive heart failure, and renoprotection.1 ACE inhibitors are also reported to increase substance P (SP) concentration in sputum in patients with hypertension,2 and a reduction of SP concentrations in sputum is observed in patients with aspiration pneumonia.3 Since SP might stimulate the swallowing reflex,4 we have investigated whether an ACE inhibitor improves the swallowing reflex in elderly patients with aspiration pneumonia.

Twenty-two normotensive patients, mean age 75 (SE, ±2) years had at least one episode of aspiration with chest radiographic evidence of inflammation in the lower pulmonary segments. The 10 control subjects, mean age 75 (±3) years, were healthy volunteers. The swallowing reflex was induced by a bolus injection of 1 mL of distilled water into the pharynx through a nasal catheter. Swallowing was identified by submental electromyographic activity.5-7 The swallowing reflex was evaluated by the latency of response, which was timed from the injection to the onset of swallowing.8-10 In a randomized, double-blind, crossover design, the subjects were allocated a 5-mg tablet of imidapril or placebo daily for 2 weeks. The swallowing reflex was measured three times at an interval of 5 min after the treatment period, and an average value was used for analysis. The latency of response did not differ between placebo and imidapril in the controls (1.2 [±0.1] vs 1.4 [±0.2] s; p>0.50). However, imidapril significantly improved the latency of response compared with placebo in patients (2.7 [±0.3] vs 6.3 [±1.1] s; p<0.002).

In conclusion, our results suggest that ACE inhibitors have beneficial effects on the impaired swallowing reflex in patients with aspiration pneumonia and help to prevent aspiration pneumonia in these patients.

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Usefulness of Carcinoembryonic Antigen in Pleural Effusion Diagnosis

To the Editor:

We read with interest the report by Garcia-Pachon and colleagues (March 1997)1 on the level of carcinoembryonic antigen (CEA) in nonmalignant effusions. The authors found that CEA level was elevated (>10 ng/mL) in 17 of 182 pleural effusions (9%) owing to benign diseases, especially in empyemas and in complicated parapneumonic effusions (12.17, 70%). The authors concluded that knowing the causes and characteristics of nonmalignant pleural effusions is useful in interpreting the results of elevated levels of CEA.

We wish to report the results of our prospective study that were presented in part at the 59th Annual International Scientific Assembly of the American College of Chest Physicians, Orlando, in October of 1993. We studied 341 consecutive patients. Pleural fluid and serum CEA concentrations were determined by immunofluorescent assay. The patients were divided into various groups on the basis of the final diagnosis, which rested on clinical, radiological, and laboratory findings,2-3 and follow-up.

In 15 of 341 patients (4.4%), sufficient fluid for the planned diagnostic tests was not obtained. Of the remaining 326 patients, 131 (40%) had malignancy, 73 (22%) had transudates, 86 (26%) had benign exudates, 11 (3%) had paramalignant effusions, and 25 (9%) had pleural effusions of undetermined cause. The patients with pleural effusions of undetermined cause and those with paramalignant effusions were not included in our study. Of the 151 malignant pleural effusions, 14 were due to lymphomas and were not included in the study. Of the 25 pleural effusions of undetermined cause, 1 had a pleural fluid CEA level of 64.8 ng/mL (in the follow-up no malignancy was found).

None of the patients with paramalignant effusions and lymphomas had a pleural fluid CEA level >10 ng/mL. The causes of the remaining 276 pleural effusions are reported in Table 1. The group with 159 nonmalignant pleural effusions comprised 93 men and 66 women, with an average age of 68±19 years (range, 17 to 98 years). We selected a CEA cutoff level of 10 ng/mL for the diagnosis of malignant pleural effusion. Pleural fluid CEA concentrations were significantly higher in cases of malignant pleural effusions than in those of benign pleural effusions (mean±SD, 202.2±653.2 [ranging from 0.10 to 4,970] vs 3.5±18.4 [ranging from 0.10 to 229]; p<0.0001). Pleural fluid CEA concentrations >10 ng/mL were observed in 72 of 117 patients with malignant pleural effusions (62%). Among these,