While Using the Nicotine Patch.” In the Discussion, they speculate the causal relation between nicotine patch and acute myocardial infarction and cite many articles with respect to adverse effects of nicotine on the cardiovascular system. Our viewpoint is that even if it is just coincidental, it is important to warn those who use the nicotine patch, physicians and patients alike, about this very serious adverse cardiovascular effect of nicotine through this case report. In fact, nicotine has been reported in many studies to cause many cardiovascular problems such as myocardial infarction, arrhythmia, and aortic aneurysm, particularly when combined with a high level of cholesterol and hypertension. Unfortunately, this information has been generally overwhelmed by the more obvious pulmonary complications due to smoking.

In our laboratory, we have performed studies of nicotine on isolated rabbit heart, aorta, and pulmonary artery with perfusion and tissue bath techniques, respectively. The preliminary findings have shown that nicotine behaves like low dose epinephrine. It causes significant dose-related myocardial contraction and endothelium-independent vasoconstriction (Tables 1 and 2). Apparently, if these results can be extrapolated to a clinical condition, increased myocardial oxygen consumption secondary to increased contractility and heart rate, and decrease of coronary blood flow due to vasoconstriction will cause imbalance between oxygen demand and supply of the heart and lead to arrhythmia, and myocardial ischemia or infarction or both. Other than mediated by catecholamines, nicotine may have direct positive inotropic and vasocostrictive effect through adrenergic receptors. In our laboratory, these increased inotropic and vasoconstrictive effects can be antagonized by β- and α-adrenergic blocking agents, respectively.

Quillen et al show that cigarette smoking constricts coronary arteries and myocardial resistance vessels. Although nicotine absorption via transdermal patch is slower and lesser than cigarette smoking, the net serum concentration of nicotine will make a difference. Based on dose-related response in our studies, we believe that with or without concurrent smoking, it is the total dose of nicotine that is responsible for myocardial complications as in the case report (CHEST 1995; 107:1765-66).

Most people, including patients and the media, are very familiar with the serious pulmonary consequences of tobacco smoking such as lung cancer and COPD. As a matter of fact, from a medical point of view, the adverse effects of nicotine on the cardiovascular system is as bad as on the pulmonary, or even worse. Unfortunately, it has been understated and the public is not well informed. It is advisable for the US Food and Drug Administration to consider including boxed warning labels on nicotine patches relating to cardiovascular complications, particularly for patients with coronary disease.

It is about time, we believe, to face and emphasize these serious cardiovascular problems associated with nicotine and to educate as well as warn the public of this issue.

**References**


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**Nutritional State and Exercise Tolerance in Patients With COPD**

To the Editor:

Palance and colleagues (CHEST 1995; 107:1206-12) recently claimed that malnutrition impairs maximal exercise performance in patients with COPD. We think that this conclusion cannot be supported because the FEV1 of the malnourished patients was 25% predicted vs 40% predicted in the normal weight and overweight groups. We hope that Palance et al will reanalyze their data using appropriate statistical techniques to determine whether nutritional status had a significant effect on exercise performance of their patients, independent of FEV1.

Nutritional status does affect exercise performance to some extent in COPD. Gray-Donald et al showed that maximal exercise capacity was reduced in underweight COPD patients. In their patients, the range of FEV1 among the three weight groups was only 31 to 36% predicted, so the effects of nutritional status were more readily apparent. There was no relation between body weight and walk distance, although Schols et al found that the 6-min walk distance correlated with the serum albumin and the creatinine-height index.

Palance et al raise an interesting therapeutic point. They speculate that patients with COPD might benefit from oxygen administration during exercise, even if they are not hypoxemic. Two reports show 25 to 40% improvement in exercise duration or duration at submaximal exercise; this is mediated at least in part by reductions in breathlessness. In assessing the effects of malnutrition or other interventions on exercise performance, it is important to note whether the effect is apparent in maximal or submaximal exercise.

Jing Win Liu, MD, FCCP, Pulmonary Division, Department of Medicine,
REFERENCES


To the Editor:

I am pleased to comment on the points raised by Drs. Liu and Rochester about our article, “Nutritional State and Exercise Tolerance in Patients With COPD” (CHEST 1995; 107:1206-12).

A study of patients with similar degree of pulmonary impairment and variable levels of weight loss would be ideal for the purpose of proving that malnutrition negatively affects the exercise tolerance in COPD independently of FEV1. Given the difficulties of finding a patient population with homogeneous pulmonary functions and a large spectrum of weight loss, we elected to study a group of patients who were heterogeneous in both respiratory mechanics and nutritional status. We anticipated that, by correlating each of these two parameters with exercise tolerance, we could obviate the limitations of our alternative experimental protocol. In our patients, the correlation between body mass index and peak oxygen uptake was much stronger than FEV1 vs VO2 peak, suggesting that factors other than ventilatory mechanics are operative in reducing exercise tolerance. We were not surprised to find such a weak correlation between the degree of airways obstruction and the patient’s maximal aerobic capacity, since this observation was also made by others in the past.1,2

The results of our study are in accordance with the data reported by Gray-Donald et al (Am Rev Respir Dis 1989; 140:1544-48) who utilized a similar exercise protocol and similar measurements. Comparisons with other works in which objective measurements of muscle aerobic capacity were not obtained are more difficult. We agree with the observation by Drs. Liu and Rochester that the same results would have had a much greater significance if observed at submaximal exercise level. Recently, in a group of COPD patients exercising at moderate intensity, we found a strong relationship between the time constant of oxygen uptake and the patients’ nutritional status. These data confirm that peripheral muscle inefficiency plays an important role in reducing exercise capacity of COPD patients.

Paolo Palange, MD
Dipartimento di Medicina Clinica
University of Rome
Rome, Italy

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The Effect of Prophylaxis on the Outcome of HIV-Associated Pneumocystis carinii Pneumonia

To the Editor:

We read with interest the article by Gallant and colleagues published in the April issue (CHEST 1995; 107:1018-23). The authors analyzed the impact of prophylaxis on the outcome of Pneumocystis carinii pneumonia (PCP), comparing compliant patients on prophylaxis with noncompliant patients and patients without any prophylaxis. They found a difference in survival of PCP with 5% vs 21% deaths in the intention-to-treat-analysis and 0% vs 20% in the compliance analysis. It was concluded that prophylaxis had an important impact on morbidity and mortality of PCP (as well as on economics of HIV health care). We strongly suggest that the different outcome in both analyses exclusively reflects the effect of differences in access to medical care and has nothing to do with prophylaxis for PCP.

An increased mortality of PCP in patients with unknown HIV-serostatus before the diagnosis of PCP has been previously recognized.1 In fact, 27% of the study population had a first diagnosis of HIV-infection together with PCP. Intravenous drug abusers usually represent a population with a largely restricted compliance to all kinds of medical advices. The study population included 42% intravenous drug abusers. Thus, it is very likely that these patients had a delay in diagnosis, a more severe initial presentation of PCP and subsequently a higher mortality.

On the other hand, the effect of aerosolized pentamidine prophylaxis (which was the prophylaxis regimen of the study population in 72% on presentation and severity of PCP has been carefully investigated. These studies consistently concluded that there were no differences in severity of PCP assessed by P(A-a)O2 and scores for infiltrates in the chest radiograph as compared with patients without any prophylaxis. As a result, mortality rates were comparable.2,3

In our institution, 17 patients on primary aerosolized pentamidine prophylaxis and 42 without any prophylaxis developed PCP between 1989 and 1994. Both groups were strikingly homogenous with regard to age (36±10 vs 36±11), PCP as first manifestation of AIDS (71 vs 74%) and CD4-cell count (43 vs 59/μL). Accordingly, parameters known to be associated with the outcome were very similar. These included parameters reflecting the severity of pneumonia: P(A-a)O2 (42±16 vs 43±16 mmHg), lactate dehydrogenase (355±188 vs 369±165 U/L), percentage of neutrophils in BAL (12±22 vs 14±20%), and radiographic score (11.6±7.5 vs 8.6±6.1), as well as more unpecific parameters such as hemoglobin (12.2±2.0 vs 12.1±2.0 g/dL) and albumin (3.4±0.5 vs 3.6±0.6 g/dL). There were no differences with regard to in-hospital mortality (13 vs 7%, log rank p=NS). Thus, the severity of PCP as well as the mortality were by no means reduced by prophylaxis. The percentage of cases with previously unknown serostatus, however, was negligible (2%), and the percentage of intravenous drug abusers was low (0 vs 7%); the vast majority of patients were hemophiliacs or homosexuals (100 vs 93%). Although a significant proportion of patients was reluctant...