inadequate, intubation is the only alternative considered. We hope that Dr. Marino’s work and the extensive experience in using noninvasive intermittent positive airway pressure techniques for neuromuscular patients with acute or chronic ventilatory failure will stimulate wider use of these methods for other patients with ventilatory insufficiency from any cause.

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To the Editor:

I certainly agree with Dr. Bach that “mask” ventilation doesn’t have to be through the nose. It is quite clear that lip-seal mouthpieces, full-face CPAP masks (of many brands, both custom-fitted and otherwise), and nasal masks (also of many brands) are all effective means of providing mechanical ventilation to selected patients. It is further clear that those who are involved in providing such therapy must commit themselves to making great efforts to individualize it.

However, I think that Dr. Bach misses the point of my study. The majority of the articles which he quotes (and which he pointedly states predate my article) do not address the issue of respiratory failure due to obstructive lung disease. Rather, the articles he cites deal with, in the main, respiratory failure due to restrictive lung disease, especially of neuromuscular etiology. I must point out that, in neuromuscular disease with relatively normal respiratory systems, patients can be ventilated with rather low airway pressures.

This is not the case in obstructive disease, and the lip-seal mouthpiece really does not comfortably contain the high pressures requisite for adequate ventilation in many such patients. I have found this to be the case in trials that I myself have carried out.

Further, when Dr. Bach questions whether various modes of mechanical ventilation were offered to the patients in this study, he seems to miss the point that all ventilation in this study was initiated acutely, in patients presenting with rather severe hypercapnic respiratory failure. Of these, nine responded well. A hypothyroid patient became eucapnic after thyroid replacement, and four of the eight patients with COPD wished not to continue, due to mask-associated discomfort (as was stated in the article). I would also like to reiterate that two of the patients found the cuirass preferable.

Finally, the four patients using mechanical ventilation chronically (and several others in whom I have instituted such ventilatory support subsequently) have used their ventilators during all times of the day and night, depending on their own convenience and comfort. All have shown comparable degrees of benefit, regardless of their ventilator schedule.

In summary, my article demonstrated that, as in neuromuscular and chest wall disease patients, certain patients with respiratory failure due to COPD can benefit from positive pressure ventilation applied by mask to the upper airway. Such therapy must be individualized and carefully applied, and its benefit seems to be at least partially mediated by resting of the respiratory muscles.

I certainly applaud the efforts of anyone who attempts to increase the proportion of patients able to be so treated by means of other mask devices, but such efforts are irrelevant to the current discussion.

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Mouth Occlusion Pressure in Young Subjects with a Brief Smoking History

To the Editor:

In 1985, Chadha et al1 published a study of respiratory drive in smokers with a history of smoking for 12 to 40 pack-years whose only functional alteration was an effect on the forced mid-expiratory flow. Although the subjects’ responses varied according to the method used to assess respiratory center function (mouth occlusion pressure during carbon dioxide rebreathing or breathing pattern during passive upright tilt), the authors’ concluded that disturbances of respiratory center control are common in smokers without major obstruction of the airways.

Our purpose was to ascertain whether in young subjects, with a shorter smoking history and without any alterations in bronchial permeability, modifications in respiratory center function can be observed by measuring mouth occlusion pressure during ambient air breathing. To our knowledge, data such as these are not available in the literature.

Sixty-two subjects, aged 19 to 32 years, with no antecedents of bronchial disease, participated in the study; 31 were light smokers (3 ± 0.15 pack-years), and 31 had never smoked. The spirometric measures were obtained with a Lilly-type pneumotachograph (Transferscreen, Erich Jaeger, Germany), and the theoretical values employed were those of Knudsen et al.5 The pressures were determined with a Hewlett-Packard 1290 C membrane-type transducer and were recorded by tracing x-y plots. (Servogor 731, BBC Coerz Metrawatt, Germany). During data collection, the subjects were seating, breathing ambient air and following the standard procedure.3,4 The smokers had been instructed to abstain from smoking for at least 4 h prior to the study. Mouth occlusion pressures at 100, 150, and 200 ms were calculated as the average of at least three recordings. Student's t test was used to test for differences between smokers and nonsmokers, with p<0.05 taken as significant.

Smokers and nonsmokers were not found to be different with respect to age, weight, or height. No differences were found either for spirometric values or mouth occlusion pressures, which were normal in all cases (Table 1).

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Table 1—Anthropometric, Spirometric, and Mouth Occlusion Pressure Values in Smokers and Nonsmokers*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Nonsmokers (n = 31)</th>
<th>Smokers (n = 31)</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age, yr</td>
<td>22.5 ± 2.9</td>
<td>22.1 ± 2.6</td>
<td>NS</td>
</tr>
<tr>
<td>Weight, kg</td>
<td>63.6 ± 9.6</td>
<td>61.5 ± 9.5</td>
<td>NS</td>
</tr>
<tr>
<td>Height, cm</td>
<td>167 ± 7.1</td>
<td>166.6 ± 7.8</td>
<td>NS</td>
</tr>
<tr>
<td>FEV1, % predicted</td>
<td>111 ± 15.3</td>
<td>106.0 ± 12.2</td>
<td>NS</td>
</tr>
<tr>
<td>FVC, % predicted</td>
<td>107.1 ± 14.2</td>
<td>106.8 ± 9.7</td>
<td>NS</td>
</tr>
<tr>
<td>FEF25-75%, % pred</td>
<td>109.8 ± 26.7</td>
<td>110.7 ± 27.5</td>
<td>NS</td>
</tr>
<tr>
<td>P'01, cm H2O</td>
<td>0.90 ± 0.3</td>
<td>0.96 ± 0.3</td>
<td>NS</td>
</tr>
<tr>
<td>P'O15, cm H2O</td>
<td>1.40 ± 0.6</td>
<td>1.59 ± 0.5</td>
<td>NS</td>
</tr>
<tr>
<td>P'O2, cm H2O</td>
<td>2.0 ± 0.8</td>
<td>2.10 ± 0.6</td>
<td>NS</td>
</tr>
</tbody>
</table>

*Values are expressed as mean ± SD. FEV1 = forced expiratory volume in 1 s; FVC = forced vital capacity; FEF25-75% = forced mid-expiratory flow; P'01 = mouth occlusion pressure in the first 100 ms; P'O15 = mouth occlusion pressure in the first 150 ms; P'O2 = mouth occlusion pressure in the first 200 ms; NS = not significant.

In contrast to the results of Chadha et al., our results show that in our subjects, no modifications are present in respiratory center function when it is assessed by measurement of mouth occlusion pressure during ambient air breathing.

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Pulmonary Tuberculosis in Sputum-Negative Brazilian AIDS Patients

To the Editor:

Infection with the human immunodeficiency virus (HIV), the causative agent of the acquired immunodeficiency syndrome (AIDS), is one of the most potent inducers of reactivation of latent Mycobacterium tuberculosis infection. The incidence of tuberculosis (TB) has been steadily rising even in countries where it was previously declining, largely due to the present HIV pandemic.

Tuberculosis, in its various forms, is the indicator disease in 20 percent of Brazilian AIDS patients. Overall, more than a third of all HIV-infected Brazilian individuals will have TB during the course of their retroviral infection. Non-M tuberculosis mycobacterial infections are rather uncommon in our patient population (A. Kritsky, M.D., oral communication, 1990).

Since TB is a communicable, treatable, and potentially preventable disease, much of the associated morbidity and mortality might be prevented by expeditious diagnosis. In HIV-infected individuals, sputum examination (direct or culture) can be negative in a significant proportion of cases, and in patients with AIDS, pulmonary TB frequently has an atypical presentation. In these patients, diagnosis largely depends on invasive, sophisticated, and expensive techniques, which are generally not readily available in developing countries.

The main objective of this study was to identify simple and readily available clinical and laboratory predictors of pulmonary TB in AIDS patients whose sputum investigation is negative.

Charts of AIDS patients with respiratory complaints submitted to diagnostic fiberoptic bronchoscopy between December 1988 and February 1990 at a university hospital in Brazil were reviewed. The exclusion criterion was a diagnosis of TB through examination of sputum or material obtained from extrapulmonary sites.

Ninety-six AIDS patients conformed to inclusion criteria. In 18 patients (18.75 percent [95 percent confidence interval = 11 percent to 26.5 percent]), a diagnosis of TB was made. Bacilloscopy and/or culture of bronchoalveolar lavage material was positive in 17. The diagnosis depended exclusively on the histopathologic findings in a biopsy fragment in one patient.

Stepwise logistic regression analysis identified peripheral blood leukocytosis, left shift in neutrophil count, significant weight loss, lack of a concomitant diagnosis of another opportunistic infection, and absence of a previous diagnosis of TB as significant and independent predictors.

Two points deserve special comments: (1) In a significant proportion (18.75 percent) of patients, diagnosis of TB would probably not have been made if the patients had not undergone fiberoptic bronchoscopy. (2) It is noteworthy that 13 patients with a previous history of TB, none was found to have active pulmonary disease.

Pulmonary TB is a frequent condition in HIV-infected individuals, especially in developing countries where sophisticated diagnostic techniques are unavailable or available in only a few hospitals. Development of prospectively validated prediction rules will facilitate identification of cases deserving referral to tertiary centers and hence may help prevent much of the morbidity and mortality associated with TB.

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