During acute viral illnesses, Montague and colleagues show that 32 patients belong in one of three groups: mononucleosis syndrome, influenza syndrome, or miscellaneous viral illnesses. Age-matched uninfected control subjects have integral summation T-waves which are statistically greater than those in the viral illness group.

In the majority of patients, T-wave changes revert to normal within a two-month period. The authors further show these acute T-wave changes are not detectable by standard 12-lead electrocardiographic records. Neither are they found by 24-hour ambulatory electrocardiograms or echocardiograms. These benign, subtle cardiac effects of viral illnesses are common. I envision reversible interstitial T-cell inflammation and intracellular myocyte edema in the hearts of these patients. On exercise testing, frank T-wave inversions or decreased ejection fractions might be seen.

With colleagues, I have studied coxsackievirus-induced myocarditis in mice. Coxsackievirus A-9 infection causes interstitial reversible myocarditis. However, severe exercise by swimming during acute infection causes increased virus myocardial replication and subsequent cardiac dilatation. Recovery is complete 90 days later and infected hearts are then normal histologically. If initial infection involves myocardial cell necrosis (coxsackievirus B types 1-4), histologic recovery is incomplete and permanent primary myocardial disease results. As contrasted with the benign myocarditis of coxsackievirus A-9, we term necrotizing coxsackievirus B myocarditis virulent disease. If swimming is done during the acute phase of virulent murine coxsackievirus B disease, virus cardiac titers are increased 500 times, the myocardium is transformed into a necrotic mass, hearts dilate massively, and over half the affected animals die in pulmonary edema.

Patients with benign interstitial myocarditis have prolonged nongravitant courses of a fatigue syndrome similar to that caused by acute Epstein-Barr virus or cytomegalovirus infections. How can clinicians recognize this illness, which required quantitative summation integral T wave studies by the Dalhousie University investigators? I am not certain, but exercise stress testing with or without stress ventriculograms would likely detect many patients. Others have T-wave abnormalities and/or ectopic beats at rest or during ordinary activities noted by Holter monitor.

How should we care for these patients? Rest is the mainstay of treatment. Patients are placed at complete bed rest during the acute phase of viral illness (approximately 14 days). They then may work at fairly sedentary jobs four hours/day (approximately two weeks) and eight hours/day (approximately two weeks). They are told not to exercise, avoid climbing stairs, and avoid alcoholic beverages (approximately three months). Corticosteroids or anti-inflammatory agents are not used. Beta-blockers are not used, unless ectopy is pronounced.

The article by Montague et al offers important insight into a spectrum of largely unrecognized disease.

A. Martin Lerner, M.D.
Detroit

Clinical Professor of Medicine, Wayne State University School of Medicine.
Reprint requests: Dr. Lerner, 3100 Lahser, Birmingham, MI 48010

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Complications of Nd:YAG Laser Therapy

The report, in this issue, by Denton and his colleagues (see page 1086) of a major complication using the Nd:Yag laser in the treatment of a tracheobronchial neoplasm brings home the point that this powerful clinical tool can also be a dangerous one. After a treatment modality becomes accepted in clinical practice, there is a tendency to become complacent about the risks involved in its use. The Nd:YAG laser has had several serious complications reported. These include: a risk of death from hemorrhage of 2 percent, fire in the tracheobronchial tree, pneumothorax, esophageal fistula, bronchial perforation, and hypoxemia. It is incumbent upon the clinicians using this laser to do all that is possible to reduce these risks. It is also important that this procedure, which is palliative, be used in a manner to increase the quality of life of our terminally ill cancer patients with the least morbidity possible. We would agree
with the general conclusions of the authors that: (1) There must be close communication between the laser bronchoscopists and the anesthesiologist and his team. (2) That the Fio₂ should be kept at 0.5 or less during laser treatment and hemoglobin saturation should be continuously monitored during the whole procedure. (3) Adequate number of laser fibers should be available and nonsheathed quartz monofilament fibers should be used with extreme caution, if at all. (4) The operating room team must be prepared to act quickly in the case of an endobronchial fire to protect the patient, and the operating room staff. However, in all likelihood, this fire could have been prevented by the use of the rigid bronchoscope.

Despite greater than five years of clinical experience with the Nd:YAG laser, controversy still surrounds how best to use it. Initially, we used the flexible fiberoptic bronchoscope with general anesthesia, and our experience has been previously reported.1,4 Since then, we have switched to using the rigid bronchoscope under general anesthesia. Anesthetic gases are easily given through a rigid bronchoscope. We use little intravenous anesthesia and the vast majority of our patients are extubated in the operating suite at the end of the procedure. In experienced hands, damage to the upper airways is extremely rare. Rigid bronchoscopy easily reaches the trachea and mainstem bronchi which we feel are the most efficacious areas of treatment with this technique. If necessary, the flexible fiberoptic bronchoscope can be used through the rigid bronchoscope to reach more distal lesions. The rigid instrument permits more efficient debriurement resulting in shorter operating times. There is better continuous visualization of the operative field due to the ability to simultaneously apply suction (to remove blood and debris) and treat with the laser. The risk of fire is negligible. The only materials in the airway that can burn are the flexible suction catheter and the laser fiber. We have found, that with these materials, it is difficult if not impossible to sustain combustion, and both can be removed quickly without having to remove the rigid bronchoscope. Also, the rigid bronchoscope improves our success at opening an obstructed airway during a single treatment session. We now rarely have to treat more than once to either achieve relief of obstruction or determine that further laser photoresection will be of no benefit. The median hospital stay is one day for our patients; many are dismissed the same day.

We now feel that the rigid bronchoscope is indicated in the treatment of over 95 percent of our patients and reserve the flexible fiberoptic bronchoscope for situations where the rigid scope can not be used. We would strongly urge all laser bronchoscopists to acquire rigid bronchoscopy skills and to use them. We are certain that once tried, the advantages of combining the Nd:YAG laser and the rigid bronchoscope will become obvious.

W Mark Brutinel, M.D., F.C.C.P.; Denis A. Cortese, M.D., F.C.C.P.; Eric S. Edell, M.D.; John C. McDougall, M.D., F.C.C.P.; and Udaya B. S. Prakash, M.D., F.C.C.P., Rochester, MN

Division of Thoracic Diseases and Internal Medicine, Mayo Clinic and Mayo Foundation.
Reprint requests: Dr. Brutinel, Mayo Clinic, Rochester, MN 55905

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Diagnosis of Emphysema

The article by Rothpearl et al on page 907 in this issue is the latest in a series from various sites in which the fundamental aim seems to be to identify methods for early recognition of chronic obstructive pulmonary disease (COPD) or, in this instance, clinical emphysema. The authors' definition of "clinical emphysema" leads me to conclude that this term is in essence a euphemism for COPD. The reason for using these terms derives from the illusion that, since pulmonary emphysema is defined in morphologic terms, this disease can only be diagnosed or excluded at autopsy.

Numerous autopsy studies of patients with COPD have shown that, while the majority have centrilobular emphysema with or without chronic small airways disease, some have small airways disease without emphysema.5-8 Thus, the one term, COPD (or clinical emphysema), can be applied to patients whose pulmonary lesions are completely different. In addition, some cases with emphysema at autopsy have not had COPD during life. As a result, attempts at early recognition of emphysema by means of elaborate tests of lung function or mechanics are unlikely to be uniformly successful.

In the present paper, Rothpearl and colleagues have applied multiple regression analysis of measurements on chest films for correlation with a variety of lung...