patients exhibiting an objective response to high-dose corticosteroids.\textsuperscript{3,4} Cytotoxic agents have not been shown clearly to improve measures of pulmonary function or outcome.\textsuperscript{12,13} However, the addition of cytotoxic agents to regimens in patients who fail to improve or deteriorate despite corticosteroid therapy remains an accepted option. Low-dose colchicine appears to be a well-tolerated agent with anecdotal reports of benefit in IPF.\textsuperscript{14} The ability of colchicine to selectively suppress the \textit{in vitro} release of fibroblast growth signals from alveolar macrophages obtained from IPF patients, and its potential clinical benefit in nonpulmonary fibrotic disorders support a strong scientific rationale for a clinical trial.\textsuperscript{15,16} Although a highly welcomed therapeutic option, lung transplantation is a viable option for only a small minority of patients. Recognizing the potential for rapid disease progression, referral to a transplant center should be considered as early as possible.

Understanding of the pathogenesis of IPF will serve as a foundation on which future therapeutic strategies will be developed, including effective interventions to arrest disease progression, reverse the fibroproliferative process, and identify early markers of disease activity.\textsuperscript{17} Despite significant progress, the challenge that confronts us in the development of effective therapy for IPF appears to be threefold: (1) increased support for basic investigation of the pathophysiology of IPF and related fibroproliferative disorders; (2) collaborative efforts by basic investigators to translate research findings into potential therapeutic strategies; and (3) development of multicenter trials of potential therapeutic strategies.

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Lung Cancer Resection
Who’s Inoperable?

Since the first well-performed study of pulmonary function testing in candidates for lung surgery was published in 1955 by Gaensler and associates,\textsuperscript{1} many attempts have been made to establish criteria to predict who would not survive or would sustain complications of resection. The study by Gaensler et al\textsuperscript{1} investigated the clinical problem of that era, pulmonary tuberculosis. The introduction of successful chemotherapy made their findings somewhat moot. However, the preoperative maximal voluntary ventilation of <50% predicted seemed to become a \textit{de facto} exclusionary criterion. Subsequently, physiologic inoperability has remained an important question primarily because of the ominous fate of those with lung cancer and coexistent cardiopulmonary disease who are denied surgery.

Now, some 40 years later, we have made significant advancements in (1) understanding of cardiopulmonary physiology, (2) surgical technique, (3) perioperative care, and (4) nonsurgical treatment modalities.\textsuperscript{2} The current study by Bolliger and associates
in this issue (see page 341) adds further to the cardiopulmonary advancements in this arena by providing what amounts to a rapprochement between the advocates of the quantitative scintigraphic method vs the exercise VO₂ approach. In their study, both techniques appear to have merit. While one may quibble with the size of the sample and the inclusion of patients with only mild dysfunction, the findings are in agreement with those of other investigators. Likewise, the physiologic explanation of just how post resectional VO₂max can be predicted by multiplying preoperative VO₂max and the partition of regional lung function via ventilation-perfusion scanning also bears further investigation and explanation.

Perhaps as a devil’s advocate, it would be appropriate to suggest that the operability for the lung cancer question is now also somewhat moot. As evidence, I can cite the following recent developments: (1) Morice and coworkers and Kearney and associates have broken the “hypercarnia barrier” by successfully resecting lung tissue of patients ostensibly in chronic respiratory failure, (2) video-assisted thoracic surgery (VATS) may further reduce perioperative complications, (3) postoperative analgesia may diminish short-term postoperative dysfunction, (4) lung volume reduction surgery could, if performed in concert with resection, improve rehabilitation, (5) single-lung transplantation, originally performed unsuccessfully in a patient with lung cancer, is now an optional procedure for severe COPD, and (6) some patients may even opt for long-term ventilatory support, if needed, to obtain a cancer cure.

In summary, perhaps the answer to the original question is . . . almost no one.

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A New Classification of Parapneumonic Effusions and Empyema

The optimal management of patients with pleural effusion secondary to a bacterial process in the thoracic cavity will result in patients being restored to their former state of good health in the most expeditious manner with the least invasive measures. In addition to selecting an appropriate antibiotic, the main treatment options are tube thoracostomy (either a small or a large tube), the intrapleural instillation of a thrombolytic agent, videothoracoscopy with the breakdown of adhesions, decortication, or an open drainage procedure.

Pleural effusions due to bacterial infections in the chest have been classified as parapneumonic effusions, complicated parapneumonic effusions, and empyema. A parapneumonic effusion is any pleural effusion secondary to a bacterial infection of the lung, while a complicated parapneumonic effusion is a parapneumonic effusion that requires tube thoracostomy for its resolution. An empyema is pus in the pleural space; pus by definition is thick, purulent appearing fluid. Most empyemas arise from pneumonias, although about one third of patients with empyema have no associated pneumonia process.

Numerous papers have been written about the identification of the patient who will need a tube thoracostomy for the resolution of a pleural effusion. The need for tube thoracostomy is dictated by the characteristics of the pleural fluid. Patients who have a low pleural fluid glucose level (<40 mg/dL), a low pleural fluid pH (<7.20), or a positive Gram stain or culture of the pleural fluid are more likely to require tube thoracostomy. Some patients whose pleural fluid meets these criteria, however, recover completely with only the administration of antibiotics. In general, I believe that it is preferable to perform too many, rather than too few tube thoracostomies, since the morbidity associated with an unnecessary chest tube is much less than that associated with the delayed insertion of a necessary chest tube.

Not all complicated parapneumonic effusions and empyemas comparably behave. Some patients who...