HOSPITAL PHYSICIAN®

PULMONARY DISEASE BOARD REVIEW MANUAL

STATEMENT OF EDITORIAL PURPOSE

The *Hospital Physician Pulmonary Disease Board Review Manual* is a peer-reviewed study guide for fellows and practicing physicians preparing for board examinations in pulmonary disease. Each quarterly manual reviews a topic essential to current practice in the subspecialty of pulmonary disease.

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Preoperative Evaluation of Patients with Pulmonary Disease

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Preoperative Evaluation of Patients with Pulmonary Disease

Gregory Kane, MD, FACP, FCCP

INTRODUCTION

The preoperative evaluation of patients undergoing nonthoracic surgery or pulmonary resection is an important skill for the practicing pulmonary physician. Patients at risk for pulmonary complications following surgery include those with chronic lung disease or asthma, heavy smokers, persons of advanced age, obese patients, and patients with recent upper respiratory infections. Potential complications include atelectasis, pneumonia, and respiratory failure. The development of pneumonia is an important outcome because it may lead to respiratory failure and is associated with a high morbidity and mortality.[1] Patients also may be at risk for postoperative deep vein thrombosis (DVT) and pulmonary embolism (PE). It is the responsibility of the pulmonary consultant to determine which patients will benefit from prophylaxis. The evaluation of patients prior to pulmonary resection is complicated by the possibility that functional pulmonary parenchyma will be resected during the surgical procedure, resulting in reduced lung function. The physician performing the preoperative evaluation must estimate the patient's postoperative lung function and consider this information when determining whether surgery should proceed.

This manual reviews the preoperative assessment and management of patients with pulmonary disease in the context of common surgical scenarios.

TERMINOLOGY AND EVALUATION PROCESS

Historically, internists have been called on to provide *clearance* for patients scheduled to undergo a surgical procedure. However, the term *clearance* is not preferred because it implies that patients *cleared* will avoid complications altogether. It is preferred instead that the consulting physician designate the patient as being at low risk, mildly increased risk, moderately increased risk, or significant risk based upon underlying disease and the planned surgery.

In delineating the role of the internist or subspecialist in a preoperative evaluation, Merli and Weitz[2] emphasize the importance of clear communication with surgical colleagues. Specifically, they recommend determining the question, establishing urgency, providing specific recommendations, communicating with the team, and providing follow-up as key components of the process. These suggestions form the basis of the "10 Commandments for the Medical Consultant" (**Table 1**).[3]

The assessment tools used for preoperative evaluation of patients with pulmonary disease include a careful history with attention to functional status, physical examination with assessment for complications of pulmonary disease (eg, cor pulmonale), radiographic imaging, complete pulmonary function studies, measures of arterial blood gases, and echocardiograpy. In all patients with underlying pulmonary disease, a single chest radiograph (posteroanterior and lateral views) and spirometry should be obtained at baseline. The need for further studies is dictated based upon the radiograph and spirometry results, the relative degree of pulmonary reserve, and the type of procedure. In specialized settings, exercise testing may add further information. The findings gathered from the preoperative assessment are synthesized with evidence from the literature on patient- and procedure-related factors that increase risk for postoperative complications. Based on this information, the physician can perform risk stratification for individual patients undergoing proposed surgical procedures. With the patient's estimated risk and expected benefit of the procedure, the medical team can determine whether surgery should proceed as planned. The pulmonologist should consider following patients postoperatively to help identify complications early.

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