Response

To the Editor:

We thank Drs Myrianthefs and Baltopoulos for the data reported in their letter. They used the results of our recently published study in CHEST1 to evaluate the different economic outcomes of patients in the ICU with ventilator-associated pneumonia (VAP) treated with IV colistin monotherapy or aerosolized plus IV (AS + IV) colistin therapy in a Greek hospital. They found that 7-day AS + IV colistin therapy is less expensive than 10-day IV colistin monotherapy. They also found that a considerable cost benefit may occur as a result of fewer days under mechanical ventilation (MV) and shorter length of ICU stay. Of course, we agree with them that the use of AS + IV colistin therapy can be a cost-effective strategy in patients with VAP, shortening the duration of therapy, MV, and ICU stay and achieving better clinical outcomes.

Because our study was retrospective, a proper cost assessment was not completely reliable, especially in the absence of parameters whose prospective collection would have been important (ie, those related to nurse workload). Consequently, we preferred to not speculate on the cost-benefit analysis. As the total length of hospitalization is the main cost driver, in our institution a considerable cost benefit would also be expected as a result of fewer days under mechanical ventilation and shorter ICU length of stay. In conclusion, the cost-effectiveness of AS + IV colistin therapy for the management of VAP caused by multidrug-resistant gram-negative bacteria should be an important end point to be further investigated in multicenter prospective randomized clinical trials.

Mario Tumbarello, MD
Gennaro De Pascale, MD
Massimo Antonelli, MD
Rome, Italy

Affiliations: From the Institute of Infectious Diseases (Dr Tumbarello) and Department of Intensive Care and Anesthesiology (Dr De Pascale and Prof Antonelli), Università Cattolica del Sacro Cuore.

Financial/nonfinancial disclosures: The authors have reported to CHEST that no potential conflicts of interest exist with any companies/organizations whose products or services may be discussed in this article.

Correspondence to: Mario Tumbarello, MD, Università Cattolica del Sacro Cuore, Institute of Infectious Diseases, Largo A. Gemelli 8, Rome, Italy 00168; e-mail: tumbarello@rm.unicatt.it

© 2014 American College of Chest Physicians. Reproduction of this article is prohibited without written permission from the American College of Chest Physicians. See online for more details.

DOI: 10.1378/chest.14-0098

References


Prediction of Postoperative Lung Function in Patients With Lung Cancer

The Role of Quantitative CT Imaging

To the Editor:

We read with great interest the article by Brunelli et al1 in the third edition of the American College of Chest Physicians lung cancer guidelines published in CHEST (May 2013) regarding the physiologic evaluation of the patient being considered for resectional surgery. We certainly appreciate the clarity of the presented data and strongly believe that they provide an evidence-based approach to the preoperative evaluation of lung resection candidates.

Prediction of postoperative lung function has a key role in the proposed algorithm; however, we believe that the proposed method of performing this prediction, especially in case of lobectomy, is not optimal. The anatomic method based on the formula predicted postoperative FEV1 = preoperative FEV1 × (1 − y/z), where y is the functional or unobstructed lung segments to be removed, and z is the total functional segments, was proposed by Bolliger et al2 as a simpler alternative to the Nakahara formula (which took into account functional subsegments), since its predictive capability was equal to the latter. However, quantitative CT imaging has been tested in the prediction of postoperative lung function and has yielded more accurate predictions than the segment-counting method. Ueda et al3 demonstrated that volumetric analysis via quantitative CT imaging was better for estimating the functional contribution of a specific lung lobe, compared with segment counting, especially in cases where the functional contribution of every segment varies due to underlying diseases such as pulmonary emphysema or fibrosis, which may be heterogeneously distributed. Ohno et al4 demonstrated that the correlation coefficient was lower and the limits of agreement of the anatomic method were larger than those of quantitative CT imaging. Yoshimoto et al5 confirmed that the segment-counting method is inferior to quantitative CT imaging for predicting postoperative lung function after lobectomy.

Volumetric analysis via quantitative CT imaging is fast, accurate, and technically simple and is performed by analyzing the already existing data of the chest CT scan, which is available in any case, since it is routinely performed in all patients with lung cancer. The predictive capability of quantitative CT imaging has also been compared with perfusion scanning, and both methods yielded similar results, with small differences either in favor of perfusion scanning or in favor of quantitative CT imaging. We believe that quantitative CT imaging should be the method of choice in predicting postoperative lung function, not only after lobectomy but also after pneumonectomy, thus, obviating the need for perfusion scanning.

Chryssovalantis V. Papageorgiou, MD
Georgios Kaltasakis, MD
Nickolos G. Koulouris, MD, PhD, FCCP
Athens, Greece

Affiliations: From the Respiratory Function Laboratory, 1st Respiratory Medicine Department, “Sotiria” Hospital for Diseases of the Chest, University of Athens.

Financial/nonfinancial disclosures: The authors have reported to CHEST that no potential conflicts of interest exist with any companies/organizations whose products or services may be discussed in this article.

Correspondence to: Chryssovalantis V. Papageorgiou, MD, 1st Respiratory Medicine Department, “Sotiria” Hospital for Diseases of the Chest, University of Athens.

References

Diseases of the Chest, University of Athens, 152 Mesogeion Ave, 11527, Athens, Greece; e-mail: valantis.pap@hotmail.com

© 2014 American College of Chest Physicians. Reproduction of this article is prohibited without written permission from the American College of Chest Physicians. See online for more details. DOI: 10.1378/chest.13-2971

REFERENCES


Response

To the Editor:

We thank Dr Papageorgiou and colleagues for their interest in our work. Predicted postoperative (PPO) pulmonary function values have a central role in the new American College of Chest Physicians functional algorithm.1 It is critical to prescribe additional testing such as exercise testing to further evaluate the fitness of the lung resection candidate.

We totally agree with the authors that quantitative chest CT scan is a valuable tool in estimating the functional loss after lung resection and that, in some reports but not in all, it has shown a more precise correlation with the actual residual function after lobectomy, measured months after operation. The segmental counting method suggested in the guidelines represents a generic classification of risk. In no case should the PPO value cutoffs reflect only a generic classification of risk. In no case should the patient be excluded from surgery merely on the grounds of split lung function alone.

Another important consideration is that the correlation between predicted and observed pulmonary function is usually calculated by taking into account the definitive residual function at 3 to 6 months after surgical resection. This correlation may not apply in the immediate postoperative period when the measured functional loss is much larger than predicted.2 The immediate loss has been shown to be associated more with complications than the PPO values.3 Instruments or equations to predict the immediate functional loss would be most needed to refine risk stratification.4 Unfortunately, there is limited scientific evidence on this subject. For this reason, we preferred to rely on the existing large body of scientific evidence to propose the cutoffs shown in the algorithm.

Alessandro Brunelli, MD, FCCP
Leeds, England

Anthony W. Kim, MD, FCCP
New Haven, CT

Kenneth I. Berger, MD, FCCP
New York, NY

Affiliations: From the Department of Thoracic Surgery (Dr Brunelli), St. James’s University Hospital; Section of Thoracic Surgery (Dr Kim), Yale University School of Medicine; and the Department of Medicine (Dr Berger) and the Division of Pulmonary, Critical Care Medicine and Sleep Medicine (Dr Addrizio-Harris), New York University School of Medicine.

Financial/nonfinancial disclosures: The authors have reported to CHEST that no potential conflicts of interest exist with any companies/organizations whose products or services may be discussed in this article.

Correspondence to: Doreen J. Addrizio-Harris, MD, FCCP, Tisch Hospital, Division of Pulmonary, Critical Care Medicine and Sleep Medicine, New York University School of Medicine, 550 First Ave, New York, NY 10016; e-mail: Doreen.addrizio@nyumc.org

© 2014 American College of Chest Physicians. Reproduction of this article is prohibited without written permission from the American College of Chest Physicians. See online for more details. DOI: 10.1378/chest.14-0178

REFERENCES


