Index Guides Discharge After Pulmonary Embolism

BY PATRICE WENDLING
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CHICAGO — The Pulmonary Embolism Severity Index provides clinicians with a useful tool for selecting patients with acute pulmonary embolism for outpatient therapy, Col. Lisa K. Moores, MC USA, said.

Recent evidence suggests that many patients presenting in the emergency department with nonmassive pulmonary embolism (PE) can be safely treated as outpatients using low-molecular-weight heparins or discharged early. Based on this growing body of evidence, the British Thoracic Society now recommends outpatient treatment for clinically stable patients with PE.

The Pulmonary Embolism Severity Index (PESI) and Geneva score are two standardized prognostic models that have been recently developed to identify patients at low risk for PE. The PESI uses 11 clinical findings routinely available at presentation that were previously shown to be associated with mortality in patients with PE or other acute diseases, said Dr. Moores, assistant dean for clinical sciences at the Uniformed Services University of the Health Sciences, Bethesda, Md.

These variables include demographics (age and male sex), comorbid conditions (cancer, chronic heart failure, and chronic lung disease), and six signs, including a heart rate of 110 bpm or more, systolic blood pressure less than

100 mm Hg, respiratory rate of 30 bpm or more, temperature less than 36° C, altered mental state, and oxygen saturation less than 90%.

A score is calculated by using age, then adding points based on the various factors present. Patients are then stratified by their score into five severity classes of increasing risk of death and other adverse outcomes.

A validation study demonstrated that patients in PESI class I (no more than 65 points) and class II (66-85 points) had a 30-day mortality of 1.6% or less and 3.5% or less, respectively (Am. J. Respir. Crit. Care Med. 2005;172:1041-6). Nonfatal cardiogenic shock or cardiorespiratory arrest occurred in 1% or less in class I and 1.3% or less in class II, and no patient in these two classes had nonfatal bleeding or recurrent venous thromboembolism, Dr. Moores said at the annual meeting of the American College of Chest Physicians (ACCP).

The Geneva score has been validated in two studies and uses six factors to stratify patients as low risk (up to 2 points) or high risk (3 points or more). Those factors are cancer, heart failure, previous deep vein thrombosis, systolic BP less than 100 mm Hg, arterial oxygen pressure less than 60 mm Hg, and deep vein thrombosis on ultrasound. Of 180 low-risk patients, only 4 (2%) had an adverse outcome, compared with 23 of 88 (26%) high-risk patients (Thromb. Haemost. 2000;84:548-52).

Dr. Moores acknowledged that the PESI model is "hard-

er to get your hands around" than the Geneva model, but said some of the most intriguing data of 2007 suggests that the PESI is "more accurate and clinically useful." An independent, head-to-head comparison in which the models were retrospectively applied to a cohort of 599 patients with objectively confirmed PE, indicated a 30-day mortality in Geneva low-risk patients of 5.6%, compared with a mortality in PESI low-risk (class I and class II) patients of 0.9% (Chest 2007;132:24-30). The PESI classified significantly fewer patients as low risk than did the Geneva model (36% vs. 84%), but the area under the receiver operating characteristic curve was higher for the PESI (0.76 vs. 0.61).

"More patients can be classified via Geneva as low risk, but the difference in mortality rates between the two systems suggests doing it more safely with the PESI," she said.

Dr. Moores suggests that patients with a higher PESI class (class III-IV) should be observed in the ICU or a telemetry unit for the first 24 hours. In addition, clinicians should consider evaluating biomarkers in these patients such as troponin, brain natriuretic peptide, and N-terminal pro–brain natriuretic peptide levels, which when elevated have been correlated with PE death.

An audience member asked if the PESI or Geneva models can be used to select patients for thrombolysis, but Dr. Moores said the predictive values drop off in higher risk patients. "Where the crossover point is to say a patient needs thrombolysis is not yet available," she said. ■

MRI Could Rival Chest X-Ray in Pediatric Lung Disease Assessment

BY BRUCE K. DIXON
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CHICAGO — Optimized low-field magnetic resonance imaging has the potential to replace plain chest radiographs in the assessment of lung disease in children, according to results of a poster study presented at the annual meeting of the Radiological Society of North America.

"The goal is to reduce radiation exposure for these very young patients—many with cystic fibrosis—while visualizing pathologies such as pneumonia and atelectasis," Dr. Joachim Bernhardt, lead author, said in an interview. "We achieved that goal in about half of the 12 children involved in our study."

A total of 48 examinations were conducted in nine boys and three girls, mean age 4 years, with pathologic lung alterations using

a Magnetom open 0.2-tesla scanner (Siemens, Germany). Images were acquired with interleaved multislice 2-D and 3-D gradient echo sequences in combination with standard steady state MRI, said Dr. Bernhardt of the University of Würzburg (Germany).

Imaging allowed localization of presented pathologies and resulted in a modification of the therapeutic regimen in 5 of 12 patients.

In addition, the researchers were able to dispense with bronchoscopy in 5 of 12 patients, and antibiotic therapy was changed in 4 of those 5 children because MR images could differentiate between atelectasis and pneumonia, said Dr. Maynard Beer, senior investigator, who outlined the distinct advantages of low-field MRI.

"For example, image artifacts are reduced when field strength is reduced, so we get more reliable images," Dr. Beer, also of the University of Würzburg, said in an interview.

Because the images are acquired so quickly and the open machine allows a parent to sit next to the child in full view, sedation is unnecessary, Dr. Beer said, adding that even when the baby or child is crying and moving, image integration produces good clinical results.

The use of the MRI influenced clinical therapy in nearly half of this small group of patients, the investigators concluded.

Neither physician had conflicts of interest to disclose. ■

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In a 3-month-old infant with a temporary slowdown of ingestion and a growth disorder, chest x-rays (a, b) show a continuing ventilation disorder of the left upper lobe. Optimized low-field MRI (c-f) shows additional ventilation disorders of the dorsal part of the right upper lobe and on a paramediastinal view on the left (arrows in d and f).

Reasons for Quitting Smoking Depend on the Patient's Age

BY PATRICE WENDLING
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CHICAGO — Older smokers are motivated to quit smoking by very different factors than are younger smokers, and tailoring cessation services to recognize these unique differences can improve quit rates, Virginia Reichert, N.P., said at the annual meeting of the American College of Chest Physicians.

Ms. Reichert and colleagues at the Center for Tobacco Control, North Shore–Long Island Jewish Health System, Great Neck, N.Y., reported the findings of a comparison study of 2,052 smokers; 143 were aged older than 65 years and 1,909 were aged 65 years or younger.

Older smokers were significantly more likely than were younger ones to report quitting smoking because of physician pressure (32% vs. 19%) and a recent change in health status (27% vs. 19%). Younger smokers attributed their reasons for quitting to general health concerns (81% vs. 68%), the cost of cigarettes (37% vs. 22%), and cigarette odor (33% vs. 18%).

Older smokers were significantly more likely than were younger smokers to report a recent hospitalization (23% vs. 13%), a diagnosis of comorbid cardiac disease (78% vs. 38%), cancer (20% vs. 6%), and chronic obstructive pulmonary disease and/or asthma (37% vs. 23%). Significantly more older smokers also reported smoking more than two packs per day (15% vs. 11%).

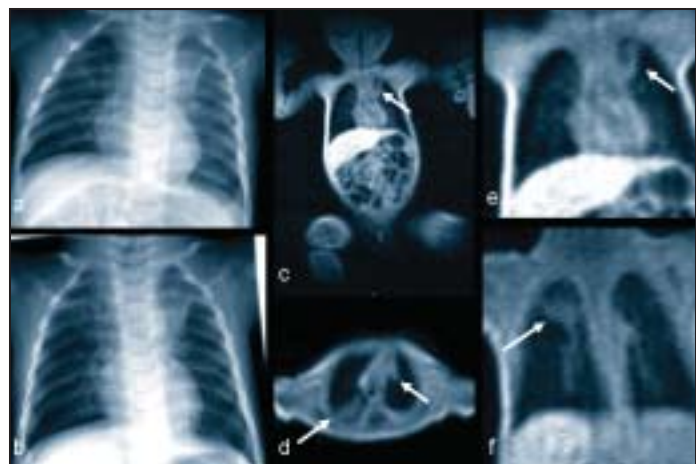Older smokers were significantly

more likely to report not wanting to give up their first cigarette in the morning as an obstacle to quitting (69% vs. 54%). In contrast, younger smokers were significantly more likely to cite weight gain (29% vs. 15%), handling social situations (24% vs. 7%), and stress relief without cigarettes (59% vs. 45%) as obstacles to quitting.

"With the younger smokers … you can develop strategies to manage stress and weight before they quit, so it's not an issue that will keep them from doing it," she said.

The two groups did share many similar beliefs, including the surprising finding that the majority of both younger (62%) and older (68%) smokers erroneously believe that nicotine causes cancer. "There's something right there that health care providers can impact, because they're not going to use the patches if they believe nicotine causes cancer," she said.

Roughly three-fourths of patients in both groups reported feeling guilty about smoking; while 72% of younger and 60% of older smokers worried that smoking would give them cancer. Nearly one-third of patients reported being depressed for much of the previous year, and a similar percentage reported receiving help or medication for their depression.

At 30 days, 57% of younger and 58% of older smokers were smoke free, as verified by a carbon monoxide monitor. Among those who quit, 34% of younger smokers and 52% of older smokers remained smoke free at 1 year, Ms. Reichert said. ■