VOL. 7 • NO. 5 • MAY 2012

CHEST Physician

THE NEWSPAPER OF THE AMERICAN COLLEGE OF CHEST PHYSICIANS

Courtesy Senior Airman Julianne Showalter/Air Force

Inhalation exposures in troops in Iraq and Afghanistan include high levels of dust, various combustion products, and open-air burn pits where trash and used uniforms are discarded.

Deployment-Related Lung Diseases Surge

BY PATRICE WENDLING
Elsevier Global Medical News

Respiratory disorders presenting in troops deployed to Iraq and Afghanistan require a standardized diagnostic approach and centers of excellence with specific expertise.

Those recommendations are part of forthcoming white paper to be released by National Jewish Health in Denver designed to better define and manage deployment-related lung diseases, a controversial diagnosis that has stirred debate over its cause and potential for long-term disability and costly government compensation.

"I think there's confusion within the Department of Medical Affairs about how to assess whether people have suffered some deployment-related lung condition," says Dr. Cecile Rose, a member of the white paper working group and director of the occupational and environmental medicine clinic at National Jewish Health.

In the community setting, "I think it's just starting to hit the radar screen of physicians, if it's even there," she added.

Researchers point to inhalational exposure to a complex mixture of high ambient dust levels, combustion products, extremes of temperature and humidity, and open-air burn pits used to burn garbage on military bases. Military officials contend that development of respiratory diseases will depend not only on the type and extent of exposure, but also on comorbidities such as preexisting asthma, tobacco use, and genetic predisposition. A consensus report released in October 2011 by the Institute of Medicine and sponsored by the U.S. Department of Defense (DOD) concluded there were insufficient data to link burn pit exposure in Iraq to chronic respiratory diseases.

Part of the challenge in truly understanding the risk is that the exposures are problematic

See **Deployment** • *page 9*

Pneumonia Trends May Be Due to Coding Changes

Lower rate offset by other diagnoses.

BY MARY ANN MOON
Elsevier Global Medical News

Notable declines in both pneumonia hospitalizations and inpatient mortality attributed to pneumonia actually appear to be statistical artifacts related to changes in diagnostic coding rather than to bonafide improvements in health care, according to a recent report.

A nationwide 27% reduction in pneumonia hospitalizations and an accompanying 28% reduction in pneumonia mortality were offset by concomitant rises in the rates of hospitalization and death due to sepsis (with a secondary diagnosis of pneumonia) and to respiratory failure (with a secondary diagnosis of pneumonia), said Dr. Peter K. Lindenauer of the Center for Quality of Care Research, Baystate Medical Center, Springfield, Mass., and his associates.

"These results suggest that secular trends in documentation and coding, rather than improvements in actual outcomes, may explain much of the observed change in this and other studies," they noted.

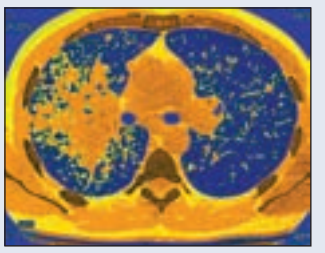
The findings also suggest that ratings of hospital performance based on pneumonia statistics may be inaccurate because of variation across hospitals in the use of diagnostic codes for pneumonia, sepsis, and respiratory failure, they added.

Noting that several epidemiologic studies have reported improvements in pneumonia statistics but that there haven't been any "care-transforming technologies" to account for this improvement, Dr. Lindenauer and his colleagues analyzed trends in pneumonia hospital admissions and outcomes over time. They used

See **Pneumonia** • *page 11*

INSIDE

Pulmonary Medicine
Smoking
The decline in the rate of smoking initiation has stalled among youth. • 7



TNF Inhibitors
Anti-TNF agents increase the risk of TB and other lung infections. • 8

Palliative and End-of-Life Care
Dyspnea
Adding a benzodiazepine to usual care may be helpful in patients' last days. • 14

News From the College
Sleep Strategies
An update from the Society of Anesthesia and Sleep Medicine. • 19

New Sleep Criteria Proposed for DSM-5

BY MIRIAM E. TUCKER
Elsevier Global Medical News

WASHINGTON – Proposed DSM-5 criteria for sleep-wake disorders include dropping the DSM-IV's "primary insomnia" diagnosis in favor of "insomnia disorder," and decreasing use of the term "not otherwise specified."

The changes reflect a move away from the need to make casual attribution between coexisting disorders and also the overall DSM-5 shift toward more data-driven diagnostic criteria, said Dr. Charles F. Reynolds III, professor of geriatric psychiatry, neurology, and neuroscience at the University of Pittsburgh.

"Sleep-wake disorders" is one of 13 diagnostic categories that are undergoing revision from the DSM-IV to the DSM-5, slated for publication in May 2013. Dr. Reynolds is chair of the seven-member Sleep-Wake Disorders Work Group that devised the proposed diagnostic criteria, which – along with the rest of the DSM-5 proposed criteria – is now open for a

See **DSM-5** • *page 12*

CHEST Physician
60 Columbia Rd.,
Bldg. B, 2nd flr.
Morristown, NJ 07960

CHANGE SERVICE REQUESTED

Presorted Standard
U.S. Postage
PAID
Permit No. 384
Lebanon Jct. KY

Meds vs. Machine: Postop DVT Prophylaxis Debate

BY DAMIAN McNAMARA
Elsevier Global Medical News

MIAMI BEACH – An internist and an orthopedic surgeon recently squared off on the best strategy to prevent deep vein thrombosis after joint-replacement surgery.

Anticoagulant agents effectively prevent DVT after total hip replacement or total knee replacement, according to a large body of scientific studies, the internist argued. In contrast to the well-studied, relatively small number of anticoagulants, the profusion of mechanical devices are supported by more limited, less-rigorous research in the medical literature, Dr. James D. Douketis, FCCP, said at a meeting on perioperative medicine sponsored by the University of Miami.

The risk of major or clinically relevant bleeding associated with anticoagulant use can be minimized with appropriate administration, such as waiting at least 12 hours after surgery to start therapy, said Dr. Douketis, director of the vascular medicine program at St. Joseph's Healthcare in Hamilton, Ont.

"I agree that the bleeding risk is relatively low if these drugs are used properly, but why do you have to take any risk?" orthopedic surgeon Dr. Clifford W. Colwell Jr. asked at the meeting.

Most bleeding episodes, when they do occur, are easy to mitigate, Dr. Douketis said. Unlike DVTs, most of these events do not have long-term consequences, he said. In addition, mechanical methods are not always benign. There are reports of trauma associated with use of intermittent compression devices, for example.

Dr. Colwell countered that a zero risk of an adverse bleeding event is one of the main benefits of mechanical devices to prevent DVT. For this reason, these devices are ideal for patients at a high risk for bleeding who cannot take anticoagulants, he said. Enhancement of the effectiveness of drug-based thromboprophylaxis and reduced leg swelling are other potential benefits of these devices.

The effectiveness of mechanical compression devices is directly correlated with how much time they are worn, and these devices are nearly complication free, said Dr. Colwell, medical director at the Shiley Center for Orthopaedic Research and Education at Scripps Clinic in La Jolla, Calif.

But their design and size can impede ambulation after surgery. There are portable intermittent compression devices, or PICDs, that can be worn out of bed and out of the hospital, Dr. Colwell said. PICDs synchronize compression with the patient's respiratory phase and provides a naturalistic phasic venous flow.

An initial study of efficacy in 121 patients "was small. … I was not convinced," Dr. Colwell said (J. Arthroplasty 2006;21:206-14). A more recent multicenter, prospective study by Dr. Colwell and his associates compared effectiveness of the PICD to low-molecular-weight heparin for 10 days for total hip arthroplasties and was more compelling (J. Bone Joint Surg. Am. 2010;92:527-35).

At 3 months, the DVT rate was "essentially the same" at 4.1% in the device group, compared with 4.2% in the anticoagulant cohort. There were no fatal pulmonary embolisms or any deaths among the 410 randomized participants. In addition, major bleeding occurred for 0% of the device wearers and 5.6% of the pharmacologically treated patients.

"I acknowledge that mechanical prophylaxis has a role after major orthopedic surgery major, but it's a second-line strategy," said Dr. Douketis, who also is on the medicine faculty at McMaster University. Pharmacologic prophylaxis should be first-line therapy because it has been shown to prevent DVT and PE, including fatal PE, he said.

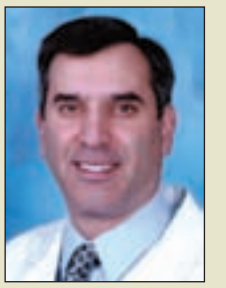
A meta-analysis by Dr. Douketis and his colleagues showed extended-duration prophylaxis with heparin or warfarin significantly decreased the frequency of symptomatic venous thromboembolism, compared with placebo after total hip or knee replacement (Lancet 2001;358:9-15).

There is less confidence about prevention of proximal DVTs with mechanical devices, Dr. Douketis said. The risks should be weighed against this efficacy, he said. The risk of major or clinically relevant bleeding was 4% in 1,508 patients treated with apixaban and 5% in 1,508 patients treated with enoxaparin (Lancet 2010;375:807-15).

Dr. Douketis remained unconvinced about PICDs and said he preferred to withhold judgment until more studies are completed. "We are much more confident with anticoagulants than mechanical strategies."

Dr. Douketis disclosed that he is a consultant or advisory board member for AGEN, Ortho-Janssen, Pfizer, Sanofi Aventis, Bayer, Bristol-Myers Squibb, Astra Zeneca, and Boehringer Ingelheim. Dr. Colwell disclosed that he is a consultant for and receives research grants from Medical Compression Systems, which makes a PICD. ■

COMMENTARY



Dr. Carl Kaplan, FCCP, comments: Post-op orthopedic patients have a known increased risk for VTE. This article highlights the challenging navigation, from the bedside pulmonary consultant or primary physician standpoint, among the various options and new and complex choices for the post-op orthopedic patient. The ACCP's recently published VTE prevention guidelines (Chest 2012;141[2 suppl]:e278S-325S) provide an excellent, efficient, and helpful tool to facilitate decision making among these options based on evidence-based medicine and expert opinion. The guidelines include the patient's values and preferences in this process.

IN THIS ISSUE

News From the College • 17
Health-care Reform: Is Anyone Listening?
The Future of Private Practice • 17

CHEST PHYSICIAN Is Online
CHEST PHYSICIAN is available on the Web at www.chestnet.org/accp/chest-physician.

Dr. W. Michael Alberts, FCCP, is Medical Editor in Chief of CHEST PHYSICIAN.

AMERICAN COLLEGE OF CHEST PHYSICIANS®

AMERICAN COLLEGE OF CHEST PHYSICIANS
Editor in Chief W. Michael Alberts, M.D., FCCP
Deputy Editor in Chief Vera De Palo, M.D., FCCP
President Suhail Raoof, MBBS, FCCP
Executive Vice President and CEO Paul A. Markowski, CAE
Senior Vice President, Communications Stephen J. Welch
Manager, Editorial Resources Pamela L. Goorsky
Medical Copy Editor II Peggy E. Perona, R.D.

Section Editors
Marilyn G. Foreman, M.D., FCCP - **Pulmonary Perspectives Editor**
Loren J. Harris, M.D., FCCP - **Pulmonary Perspectives Deputy Editor**
Peter Spiro, M.D., FCCP - **Critical Care Commentary**
David Schulman, M.D., FCCP - **Sleep Strategies**

EDITORIAL ADVISORY BOARD
Joseph Barney, M.D., FCCP, Alabama
Jun Chiong, M.D., FCCP, California
Stephen Field, M.D., FCCP, Calgary
Stuart M. Garay, M.D., FCCP, New York
Carl Kaplan, M.D., FCCP, Missouri
Burt Lesnick, M.D., FCCP, Georgia
Darcy D. Marciniuk, M.D., FCCP, Saskatchewan
Susan Millard, M.D., FCCP, Michigan
Jeana O'Brien, M.D., FCCP, Texas
Marcos I. Restrepo, M.D., MSc, FCCP, Texas
Lary Robinson, M.D., FCCP, Florida
Paul A. Selecky, M.D., FCCP, California
Steven Simpson, M.D., FCCP, Kansas

E-mail: chestphysiciannews@chestnet.org

CHEST PHYSICIAN

CHEST PHYSICIAN, the newspaper of the American College of Chest Physicians, provides cutting-edge reports from clinical meetings, FDA coverage, clinical trial results, expert commentary, and reporting on the business and politics of chest medicine. Each issue also provides material exclusive to the members of the American College of Chest Physicians. Content for **CHEST PHYSICIAN** is provided by International Medical News Group, an Elsevier company. Content for NEWS FROM THE COLLEGE is provided by the American College of Chest Physicians.

The statements and opinions expressed in **CHEST PHYSICIAN** do not necessarily reflect those of the American College of Chest Physicians, or of its officers, regents, members, and employees, or those of the Publisher. The American College of Chest Physicians, its officers, regents, members, and employees, and Elsevier Inc. do not assume responsibility for damages, loss, or claims of any kind arising from or related to the information contained in this publication, including any claims related to products, drugs, or services mentioned herein.

Address Changes: Fax changes of address (with old mailing label) to 973-290-8245.

POSTMASTER: Send change of address (with old mailing label) to CHEST PHYSICIAN, 60 B Columbia Rd., 2nd flr., Morristown, NJ 07960.

CHEST PHYSICIAN (ISSN 1558-6200) is published monthly for the American College of Chest Physicians by Elsevier Inc., 60 B Columbia Rd., 2nd flr., Morristown, NJ 07960, 973-290-8200, fax 973-290-8250.

IMNG MEDICAL MEDIA

IMNG SOCIETY PARTNERS, A DIVISION OF IMNG MEDICAL MEDIA
President, IMNG Medical Media Alan J. Imhoff
Director, IMNG Society Partners Mark Branca
Editor in Chief Mary Jo M. Dales
Executive Editors Denise Fulton, Kathy Scarbeck
Managing Editor Leanne Sullivan

Audience Development Manager Barbara Cavallaro, 973-290-8253, b.cavallaro@elsevier.com
Executive Director, Operations Jim Chicca
Director, Production and Manufacturing Yvonne Evans Struss
Production Manager Judi Sheffer
Creative Director Louise A. Koenig
Display Advertising Manager The Walchli Tauber Group: 443-512-8899, fax 443-512-8909, greg.pessagno@wt-group.com

ADVERTISING OFFICES 60 B Columbia Rd., 2nd flr., Morristown, NJ 07960, 973-290-8200, fax 973-290-8250
CLASSIFIED ADVERTISING OFFICES The Walchli Tauber Group, 2225 Old Emmorton Rd., Suite 201, Bel Air, MD 21015, 443-512-8899
EDITORIAL OFFICES 5635 Fishers Lane, Suite 6000, Rockville, MD 20852, 240-221-4500, fax 240-221-2541

For PAH (WHO Group 1) patients on oral monotherapy

TYVASO: the ONLY inhaled prostacyclin analogue approved for 4x-daily dosing[1]

Short treatment sessions: just 2 to 3 minutes each[2]

ONLY inhaled prostacyclin analogue approved as an add-on to oral PAH monotherapy[1]

- 52% of patients improved 6MWD by greater than 20 m[3]
- Improvement in 6MWD at peak (20 m) and trough (14 m) exposure[3]

Dosing regimen fits into patients' schedules

- Short treatment sessions: just 2 to 3 minutes, 4x daily[2]
- Set up once daily[1,2]
  - —One plastic ampule per day—no need to replace ampule for each treatment session[1]
  - —About 5 minutes a day for device preparation—once in the morning, and the device is ready to go all day[2]
- Treatment timing can be adjusted for planned activities[1]

Adverse events

- The most common adverse events seen with Tyvaso in ≥4% of PAH patients and more than 3% greater than placebo in the placebo-controlled clinical study were cough, headache, throat irritation/pharyngolaryngeal pain, nausea, flushing, and syncope[1]

STUDY DESIGN: TRIUMPH I was a 12-week, randomized, double-blind, placebo-controlled, multicenter study of patients (N=235) with PAH who were receiving a stable dose of bosentan or sildenafil for 3 months before study initiation. Patients were administered either placebo or Tyvaso in 4 daily treatment sessions with a target dose of 9 breaths (54 mcg) per session over the course of the 12-week study. Primary endpoint was change in 6MWD at 12 weeks. Secondary endpoints included time to clinical worsening, Borg dyspnea score, NYHA functional class, trough 6MWD at week 12 (obtained at least 4 hours after study drug administration), peak 6MWD at 6 weeks, quality of life as measured by the MLWHF questionnaire, and PAH signs and symptoms.[3]

INDICATION

Tyvaso is a prostacyclin vasodilator indicated for the treatment of pulmonary arterial hypertension (PAH) (WHO Group 1) to improve exercise ability. Studies establishing effectiveness included predominately patients with NYHA Functional Class III symptoms and etiologies of idiopathic or heritable PAH (56%) or PAH associated with connective tissue diseases (33%).

The effects diminish over the minimum recommended dosing interval of 4 hours; treatment timing can be adjusted for planned activities.

While there are long-term data on use of treprostinil by other routes of administration, nearly all controlled clinical experience with inhaled treprostinil has been on a background of bosentan (an endothelin receptor antagonist) or sildenafil (a phosphodiesterase type 5 inhibitor). The controlled clinical experience was limited to 12 weeks in duration.

IMPORTANT SAFETY INFORMATION

- Tyvaso is intended for oral inhalation only. Tyvaso is approved for use only with the Tyvaso Inhalation System
- The safety and efficacy of Tyvaso have not been established in patients with significant underlying lung disease (such as asthma or chronic obstructive pulmonary disease) and in patients under 18 years of age. Patients with acute pulmonary infections should be carefully monitored to detect any worsening of lung disease and loss of drug effect
- Tyvaso may increase the risk of bleeding, particularly in patients receiving anticoagulants
- In patients with low systemic arterial pressure, Tyvaso may cause symptomatic hypotension. The concomitant use of Tyvaso with diuretics, antihypertensives, or other vasodilators may increase the risk of symptomatic hypotension
- Hepatic or renal insufficiency may increase exposure to Tyvaso and decrease tolerability. Tyvaso dosage adjustments may be necessary if inhibitors of CYP2C8 such as gemfibrozil or inducers such as rifampin are added or withdrawn
- The most common adverse events seen with Tyvaso in ≥4% of PAH patients and more than 3% greater than placebo in the placebo-controlled clinical study were cough (54% vs 29%), headache (41% vs 23%), throat irritation/pharyngolaryngeal pain (25% vs 14%), nausea (19% vs 11%), flushing (15% vs <1%), and syncope (6% vs <1%)
- Tyvaso should be used in pregnancy only if clearly needed. Caution should be exercised when Tyvaso is administered to nursing women

Please see brief summary of Full Prescribing Information on following page. For more information, please see Full Prescribing Information, Patient Package Insert, and the Tyvaso Inhalation System Instructions for Use manual. These items are available at www.tyvaso.com.

6MWD=6-minute walk distance. MLWHF=Minnesota Living With Heart Failure. NYHA=New York Heart Association. WHO=World Health Organization.

References: 1. Tyvaso [package insert]. Research Triangle Park, NC: United Therapeutics Corporation; 2011. **2.** Tyvaso [patient package insert]. Research Triangle Park, NC: United Therapeutics Corporation; 2011. **3.** McLaughlin VV, Benza RL, Rubin LJ, et al. Addition of inhaled treprostinil to oral therapy for pulmonary arterial hypertension: a randomized controlled clinical trial. *J Am Coll Cardiol*. 2010;55(18):1915-1922.

www.tyvaso.com **www.livingpah.com** **1-877-UNITHER**

Request a visit from a Tyvaso sales representative by scanning this QR code with your smartphone or by visiting www.tyvasorep.com.

To download a QR code reader, visit your smartphone's app store and search for a QR code reader. A number of code reader apps are available.

United Therapeutics CORPORATION

TYVASO® (treprostinil) INHALATION SOLUTION

PROSTACYCLIN MADE PRACTICAL

Steroid Exposure Risk High in 'Allergic Triad'

BY MIRIAM E. TUCKER
Elsevier Global Medical News

ORLANDO – Children who have at least two diagnoses of the "allergic triad" – asthma, allergic rhinitis, and atopic dermatitis – often receive prescriptions from multiple physicians and may be at risk for substantial exposure to exogenous corticosteroids.

This finding, from a chart review of 197 pediatric patients seen between 2000 and 2010 at a single U.S. allergy/immunology clinic, "reinforces the need for improved communication and coordination of care," said Dr. Min Jung Lee of Cohen Children's Medical Center of New York.

Of the 197 patients who had been diagnosed with at least two of the three ICD-9 codes for asthma, allergic rhinitis, and/or atopic dermatitis, 48% had all three conditions. Of the patients diagnosed with two of the three conditions, 67% had both asthma and allergic rhinitis, 16.5% had asthma and atopic dermatitis, and 16.5% had allergic rhinitis and atopic dermatitis, Dr. Lee said at the annual meeting of the American Academy of Allergy, Asthma, and Immunology.

Of the patients with asthma, 74% were treated with inhaled steroids. Of those, 36% received steroid prescriptions from multiple physicians, 29% from allergists alone, 21% from primary care physicians alone, and 9% from pulmonologists alone. Of the patients with allergic rhinitis, 62% were treated with intranasal steroids, of which 20% were given prescriptions by multiple physicians, 67% by allergists alone, 5% by primary care physicians alone, and 3% by otolaryngologists alone. Of those with atopic dermatitis, 75% were treated with topical steroids; of those, 41% received steroid prescriptions from multiple physicians, 23% from dermatologists alone, 21% from allergists alone, and 7% from primary care physicians alone. (There were small numbers from each group for which the specialty of the prescriber was unknown.)

Among the children with both asthma and allergic rhinitis, 55% were treated with corticosteroids for both conditions and 38% for one of the two conditions, while just 7% were not treated with corticosteroids. For those with asthma and atopic dermatitis, 59% were prescribed corticosteroids for both conditions and 23% for just one of the two, while 18% received no corticosteroids. For the allergic rhinitis plus atopic dermatitis group, 6% were treated with corticosteroids for both conditions and 82% for just one, while 12% received none.

For the 95 patients who had all three conditions, 41% were treated with corticosteroids for all three, 36% for two of the three, and 19% for one of the three. Just 4% of that group was not treated with corticosteroids, Dr. Lee reported.

In response to an audience member's question about whether the prescriptions were coordinated, she replied, "No, usually we didn't see any communication between physicians."

In response to another audience member's question regarding the role of electronic medical records, Dr. Lee responded that "access to electronic pharmacy records would also be very beneficial for each of us to know what our patients are getting." ■

VITALS

Major Finding: Treatment with corticosteroids for both conditions was found in 55% of children with asthma and allergic rhinitis, 59% of those with asthma and atopic dermatitis, and 6% of those with allergic rhinitis plus atopic dermatitis. In patients who had all three conditions, 41% were treated with corticosteroids for all three and 36% for two of the three.

Data Source: The findings come from a chart review of 197 pediatric patients seen at a single allergy clinic over a 10-year period.

Disclosures: Both Dr. Lee and Dr. Fagin stated that they had no disclosures.

COMMENT

Dr. Susan Millard, FCCP, comments: Certainly, communication is important, but EMRs for prescription refills are not a perfect picture of compliance and medication use either.

Vitamin D May Boost Fluticasone's Rhinitis Effect

BY MITCHEL L. ZOLER
Elsevier Global Medical News

ORLANDO – Daily oral treatment with a vitamin D supplement significantly improved the ability of fluticasone nasal spray to relieve the total, daytime symptoms of seasonal rhinitis in a pilot, placebo-controlled study of 35 patients.

Two weeks of daily treatment with 4,000 IU of a standard, over-the-counter vitamin D pill also produced a strong trend toward improving the impact of a standard fluticasone nasal spray on nasal symptoms, and improved rhinoconjunctivitis quality of life, James Lane reported at the annual meeting of the American Academy of Allergy, Asthma, and Immunology.

But because the study population was so small, the next step will be to repeat the result in a larger number of patients, said Mr. Lane, a researcher in the department of surgery at the University of Chicago.

"We were not expecting vitamin D to look this good. The spread [between vitamin D treatment and placebo] was convincing and surprising; the differences we saw at days 2 and 3 were huge. We need to do it again," said Dr. Fuad M. Baroody, a professor of surgery and pediatrics at the University of Chicago and the senior investigator of the study.

"This was a shot in the dark, to see if there was any chance of it working for rhinitis. I hope we'll get funding [from the National Institutes of Health] because industry won't fund this," Dr. Baroody said in an interview. He and his associates tested vitamin D because of prior evidence that it can improve immune function.

Dr. Baroody has submitted a proposal to the NIH for a four-arm follow-up study: vitamin D alone, fluticasone alone, both agents together, and a double-placebo group. About 150 patients in each arm – 600 patients in total – will be needed to produce adequate statistical power.

"There is no way we could do that by ourselves. If the government doesn't fund it, it dies here," he said.

The study enrolled patients who were 18-45 years old and had at least a 2-year history of seasonal allergic rhinitis to tree, grass, or ragweed pollen during the pollen seasons of 2010 and 2011. The patients also needed to have a positive skin-test reaction to one of the pollen types, and had to show at least a 35% improvement in their peak nasal flow following treatment with oxymetazoline, a decongestant.

The researchers had all patients self-administer 100-mcg fluticasone propionate nasal spray into each nostril once daily, and randomized patients to additional daily treatment with 4,000 IU of oral vitamin D or placebo for 14 days.

VITALS

Major Finding: Daily fluticasone nasal spray and oral vitamin D cut total daytime symptom scores by 6.9 points, compared with 3.7 points for fluticasone alone.

Data Source: Data came from a randomized, placebo-controlled, 2-week study in 35 patients with seasonal allergic rhinitis at one U.S. center.

Disclosures: Mr. Lane and Dr. Baroody said that they had no relevant disclosures.

The enrolled patients had an average age of about 28 years, with roughly equal numbers of men and women. At baseline, their average level of serum vitamin D was about 30 ng/mL. By the end of the study, the average vitamin D level of the patients randomized to take a daily vitamin D pill had risen to 37 ng/mL, while the average level in the placebo patients had not changed from baseline.

After 2 weeks in the study, the daytime total-symptom score throughout the study period fell by an average of 3.7 points in the placebo group and by 6.9 points in the patients taking vitamin D, a significant statistical difference. The 24-hour, nasal-symptom score throughout the study fell by an average of 7.6 points in the placebo patients and by 11.3 points in the vitamin D group, a difference that approached significance. Both the total symptom scores and nasal symptom scores fell sharply in the vitamin D patients during the first week of the study and then remained low during the second week. In contrast, scores fell more gradually in the placebo patients, but by the final, 14th day of the study, average scores in the placebo patients approached those of the patients on vitamin D. This pattern suggested that vitamin D helped hasten patient responses to fluticasone, Dr. Baroody said.

The researchers also measured the patients' rhinoconjunctivitis quality of life at baseline and after 2 weeks on treatment. This measure fell by an average of 2.0 units in the placebo patients and by an average of 2.5 units in the patients who took vitamin D. With this metric, a reduction of at least 0.5 units is considered clinically meaningful. The results therefore showed that while the patients taking fluticasone alone had a meaningful quality of life improvement, the incrementally better improvement in patients also taking vitamin D was even more clinically meaningful, although the between-group difference of 0.5 units was not significant. ■

Working Out Works Well in Asthma

BY NEIL OSTERWEIL
Elsevier Global Medical News

ORLANDO – People with asthma who engaged in a structured exercise program had sustained quality-of-life improvements, a small study has shown.

Although exercise is often anathema to people with asthma, previously sedentary people with asthma who were randomized in a small study to engage in three exercise sessions per week reported a twofold greater improvement in their symptom-related quality of life, compared with those who did not increase their routine exercise, reported Dr. Thomas Platts-Mills, professor of medicine, allergy, and clinical immunology at the University of Virginia in Charlottesville.

VITALS

Major Finding: At week 8, scores on the symptom domain of an asthma quality-of-life questionnaire were significantly higher among exercisers, with 78.3% of responses indicating improvement, compared with 39.5% of responses by nonexercising controls ($P = .05$).

Data Source: This was a randomized study.

Disclosures: The study was supported by Southern Health Services. Dr. Platts-Mills and colleagues reported that they had no conflicts of interest.

The preliminary study was designed to convince health insurers to fund structured exercise programs in commercial gyms for patients with asthma, Dr. Platts-Mills said at the annual meeting of the American Academy of Allergy, Asthma, and Immunology.

"You've got three obstacles to overcome: One is that the patients think that it's a problem having to do exercise because it will make their asthma worse," he noted. "Second, the gym may be resistant, because they think they'll have asthma attacks to deal with; and third, the insurance companies are resistant, period."

The investigators recruited from a local commercial health plan 13 patients with persistent asthma. The participants were all treated with inhaled corticosteroids (ICS) and leukotriene agents that were on the health plan's formulary.

All 13 patients were identified as engaging in no or little exercise (fewer than two sessions of aerobic activity per week over the past 6 months). Patients who had more than 3 hours per week in moderate-level physical activity were excluded, as were patients with active pulmonary infections, cardiovascular disease, musculoskeletal disease, or other conditions that might impair their ability to exercise.

The authors convinced the insurer to pay a gym to enroll plan members with asthma, and they helped gym staff establish an asthma protocol that included monitoring asthmatic clients for symptoms and providing access to nebulizers.

"The gyms, we hope, will want to do this, and it's very much in the insurance company's favor to do it," Dr. Platts-Mills said. "But it's still very difficult to get people to do regular exercise."

NEIL OSTERWEIL/IMNG MEDICAL MEDIA

Patients with asthma improved with exercise, Dr. Thomas Platts-Mills said.

The seven participants assigned to the exercise group kept an exercise log recording the duration, type, and perceived exertion of all physical activities, including the three assigned exercise sessions each week. They also kept a log of medication use, asthma symptoms, unplanned medical visits, and unplanned asthma-related absences from work or school. Participants also answered an asthma quality-of-life questionnaire at the end of weeks 4, 8, 12, and 16 (the study's end).

Six participants assigned to be controls were given educational materials on exercise, participated in the telephone survey, and kept logs recording the same information as that of the exercise group. Researchers crossed over those participants to the exercise arm at 4 months.

At week 8, scores on the symptom domain of the quality-of-life questionnaire were significantly higher among exercisers, with 78.3% of responses indicating improvement, compared with 39.5% of responses by participants in the delayed-exercise group ($P = .05$).

Similarly, on the activity limitations domain, 78.3% of responding exercisers said they saw improvement, compared with 37.2% of delayed exercisers ($P = .036$). There were trends favoring exercise, but no significant differences, in the emotional function and environmental stimuli domains of the quality-of-life questionnaire.

"We have established that you can get an insurance company to pay a gym to enroll people and establish a protocol in the gym for asthmatics," Dr. Platts-Mills said. "I think this would be far more important for children with asthma if this could be achieved." ■

COMMENTARY

Dr. Stuart Garay, FCCP, comments: Most patients – and some physicians – feel exercise is contraindicated in patients with asthma. This small randomized study (funded by an insurance company) demonstrates improved quality of life in those who follow a structured exercise program. If confirmed in larger studies, many asthmatics may benefit by having their health insurance pay for such programs.

Local and Regional Lung Allocation Systems Conflict

BY MARK S. LESNEY
Elsevier Global Medical News

FT. LAUDERDALE, FLA. – More than a decade ago, the Department of Health and Human Services issued the "Final Rule on Organ Procurement and Transplantation Network Amendments," which was intended to ensure that "organs will be [allocated] based on medical criteria, not accidents of geography." Despite the introduction of this final rule, disparities in waiting list outcomes are known to be significantly influenced by where the transplantation candidate lives, and lower priority candidates are receiving organs at the expense of the more severely ill.

Although all candidates are ranked based on an objective priority score known as the Lung Allocation Score (LAS), lung allocation remains a locally based system. Organs are first allocated based on geography regardless of LAS. Therefore, organs are initially offered only to the subset of matched lung transplant candidates (based on blood group and size) within the donor's local Donor Service Area (DSA).

As a result, if an available organ is first accepted for a candidate within the local DSA, it is never offered to potentially more-severely ill candidates at the broader regional or national level – even if the regional or national candidate has a much higher priority score. There is evidence that this is a frequent occurrence, according to research presented by Dr. Mark J. Russo at the annual meeting of the Society of Thoracic Surgeons.

Dr. Russo and his colleagues analyzed data provided by the United Network for Organ Sharing to determine the frequency with which donor lungs were allocated to local candidates when blood group– and size-matched candidates with a higher LAS existed in the same region.

'Low-priority candidates ... account for nearly 90% of lung transplant recipients.'

DR. RUSSO

Their study cohort included all locally allocated organs for double lung transplantation in the United States in the year 2009. The researchers then identified all cases in which ABO blood group– and height-matched (within 10 cm) double lung candidates in the same region had a higher LAS than did the local candidates who actually received the lung. They also calculated the number of these events in which the LAS difference was greater than 10 and greater than 25. The number of these bypassed regional candidates who then died on the waiting list was also determined.

Among the 580 locally allocated double lung transplants analyzed, there was a mean of 6.0 blood group– and height-matched double lung events per transplant (3,454 total, impacting 1,193 different candidates) in the same region where candidates had a higher LAS than did the local candidate who received the organ. A total of 24% (828) of the events involved skipping over a regional candidate with an LAS greater than 10 points higher than the local recipient, with 7.2% (250) of events skipping a regional candidate with an LAS greater than 25 points higher than the local recipient. Overall, 185 of the bypassed regional candidates died on the waiting list.

VITALS

Major Finding: Of 580 lung transplantations, 24% skipped a regional candidate with an LAS more than 10 points higher than the local recipient; 7.2% skipped a regional candidate with an LAS more than 25 points higher than the local recipient.

Data Source: Data are from a study of all locally allocated organs for double lung transplantation in the U.S. in 2009.

Disclosures: Dr. Russo reported that he had no financial disclosures.

Dr. Russo said that although the issue of transportation is important, generally the adverse impact of an additional hour or two of ischemic time due to transportation is not clinically significant, and should not be a major factor in the decision as to local vs. regional candidates. "Ideally, a suitable donor organ would be available for every lung transplant candidate who could benefit from transplantation. Unfortunately, there remains a critical scarcity of donor organs available for transplantation. Therefore, efficient allocation of organs is necessary to ensure maximum benefit from the available organs," according to Dr. Russo, a cardiothoracic surgeon at the University of Chicago Medical Center.

"Locally based allocation results in a high number of events in which a lung is allocated to a lower-priority candidate when an appropriately matched, higher-priority candidate exists in the same region. As a result, low-priority candidates, defined by an LAS less than 50, account for nearly 90% of lung transplant recipients, while candidates with higher LAS scores, defined by an LAS greater than 75, continue to die at extremely high rates while awaiting transplantation," Dr. Russo stated.

Because this study considered double lung candidates only, did not consider the possibility of national matching, and did not allow for blood groups to be crossed, it likely underestimates the frequency of these events and lives lost, he said.

"These findings suggest that further study of organ sharing over broader geographies should be pursued to determine if it would improve [waiting] list outcomes, including higher rates of organ allocation to higher-priority candidates, improved survival on the waiting list, and greater net benefit from the organs available for transplantation," he said. ■

Kids of Prenatal Smokers Have Vascular Damage

BY DENISE NAPOLI
Elsevier Global Medical News

At 5 years old, the children of mothers who smoked in pregnancy had significantly greater carotid intima-media thickness and lower arterial distensibility than did unexposed offspring.

"Moreover, there was a clear positive trend between the number of cigarettes smoked by mothers in pregnancy and adverse vascular health, a finding that adds to the credibility of gestational smoking being causally related to offspring vascular damage," wrote Dr. Caroline C. Geerts and colleagues (Pediatrics 2011 Dec. 26 [doi:10.1542/peds.2011-0249]).

In what the researchers called the first study to report on prenatal smoking and arterial characteristics in nonsmoking offspring, Dr. Geerts of the University Medical Center Utrecht (the Netherlands) and colleagues looked at 259 children who underwent ultrasound at age 5 years to determine carotid artery intima-media thickness (CIMT) and arterial wall distensibility.

The participants' mothers had previously completed surveys when their children were 4 weeks of age, answering questions about smoking status at that time and during the pregnancy. A similar questionnaire was administered at the time of the child's ultrasound.

VITALS

Major Finding: At age 5 years, children of mothers who smoked during pregnancy had a carotid intima-media thickness that was 18.8 mcm thicker than that of children of nonsmoking mothers.

Data Source: Data are from an ongoing, large, prospective, population-based, birth cohort study, initiated in December 2001.

Disclosures: The authors stated they had no individual financial relationships relevant to this article. The study was partly funded by the Netherlands Organization for Health Research and Development and by the University Medical Center Utrecht.

Most mothers (244 of 259) reported that they did not smoke during pregnancy, according to the questionnaire.

At birth, children born to smokers did not differ significantly from their counterparts in terms of weight, length, or gestational age, although there was a trend for these children to be lighter in weight and shorter. They were, however, significantly less likely to be breastfed than babies of nonsmoking mothers.

By 5 years, among the 258 children with CIMT values available, children of mothers who smoked during pregnancy (n = 15) had a CIMT that was 18.8 mcm thicker than that of their counterparts.

Additionally, the children of mothers who smoked both during pregnancy and in the postnatal period (n = 11) had an even thicker CIMT (23.3 mcm), compared with that of completely nonexposed children.

In contrast, the children of 16 women who did not smoke in pregnancy but did smoke currently had no differences in CIMT, compared with children of nonsmoking mothers.

The finding was similar when investigators looked at vascular function: The arteries of children whose mothers smoked during pregnancy had significantly (16%) less stretch than did those of nonexposed peers, and the effect was compounded for children whose mothers smoked both during pregnancy and at the 5-year follow-up (19% lower distensibility).

Meanwhile, children of mothers who did not smoke during pregnancy but took it up afterward had no significant difference in distensibility, compared with their unexposed peers.

Finally, the authors found that compared with the children of mothers who smoked five or fewer cigarettes per day during pregnancy, the children of mothers who smoked more than five per day exhibited a statistically significant trend of lower mean arterial distensibility, as well as a nonsignificant trend toward greater CIMT, according to Dr. Geerts.

The authors conceded that the use of nicotine and cotinine as hair biomarkers for active smoking would have given a more reliable picture of smoking activity. However, "that technology was unknown at the time of the [study] design, and it is not known if measurements at inclusion (weeks postpartum) accurately reflect smoke exposure in pregnancy," they wrote. "Underreporting of smoking cannot be excluded."

The investigators also added that CIMT and distensibility at age 5 years – known markers of cardiovascular disease risk in adulthood – may not correlate to disease in adulthood. Such associations "can only be assumed," they added. ■

COMMENTARY

Dr. Susan Millard, FCCP, comments: This study supplies more evidence for physicians to tell parents and future parents about the many dangers of cigarette smoking!

Surgeon General: Decline in Tobacco Use Stalled

BY FRANCES CORREA
Elsevier Global Medical News

Approximately 3,800 children smoke their first cigarette every day and the rates of tobacco initiation are no longer declining, according to the Surgeon General's report, "Preventing Tobacco Use Among Youth and Young Adults."

"Every day, 1,200 Americans die from smoking and each of those people are replaced by two young smokers," Surgeon General Regina Benjamin said at a press conference. "We know that prevention is the key. … If we can just get [young people] to remain smoke free until they're 26, less than 1% of them will ever start."

Among adults who smoke daily, 88% smoked their first cigarette before their 18th birthday; nearly all (99%) did so before their 26th.

'Every day, 1,200 Americans die from smoking and each of those people are replaced by two young smokers.'

DR. BENJAMIN

According to the report, nearly 25% of high school seniors are current smokers, compared with about 33% of young adults and about 20% of adults. And it's not all cigarettes: About 1 in 10 male high school seniors currently uses smokeless tobacco and about 1 in 5 smokes cigars, according to the report.

The report, which updates the 1994 Surgeon General report on tobacco use in youth, highlights the immediate and long-term health consequences to which children and young adults are most vulnerable. These include cardiovascular damage, reduced lung function and growth, and risk of COPD.

Because they're impressionable, young adults and children also are vulnerable to tobacco advertising and targeted products. Even though the landmark 1998 Master Settlement Agreement drastically restricted the way tobacco can be marketed, one-third of the top grossing children's movies in 2010 contained images of smoking, according to the report.

"Far too many kids still see smoking images and messages every day that normalize this dependence," said Dr. Howard Koh, assistant secretary for health in the Health and Human Services department. "Kids see smoking in the movies they watch, the video games they play, the websites they visit, and the communities where they live."

Physician organizations voiced support of the report and recommended that it be used to help protect young people from using tobacco products.

"As pediatricians, and parents, we need to send a clear message to the studios that this must stop now," Dr. Robert W. Block, president of the American Academy of Pediatrics, said in a statement. Dr. Block added that the Surgeon General's report should be used to help overturn a recent federal court decision that called graphic cigarette warning labels unconstitutional.

"Warning labels play a critical role in educating children, teens, and parents about the negative health impacts of tobacco. By ignoring health harms from tobacco, we are not only sustaining incredible costs in health care, but we are also risking the lives of youth and young adults. This is simply irresponsible," he said.

The American Medical Association called for better funding of smoking cessation programs. The AMA "is concerned that these smokers will not get the support and assistance needed to combat their addiction," Dr. Peter Carmel, the association's president, said in a statement. "Increasing the price of tobacco and adopting comprehensive smoke-free laws ... would also help reduce the health, social, and economic consequences associated with tobacco use among our youth."

The American Heart Association called the report a wake up call. "We cannot let our guard down for a minute when it comes to tobacco addiction," CEO Nancy Brown said in a statement. "While many Americans may think tobacco use is fading away, the evidence in this report tells a dramatically different story." ■

May 31 is World No Tobacco Day. Read more at www.who.int/tobacco/wntd/2012/announcement/en/index.html.

TB, Mycobacterial Lung Disease Seen in Anti-TNF Users

BY BRUCE JANCIN
Elsevier Global Medical News

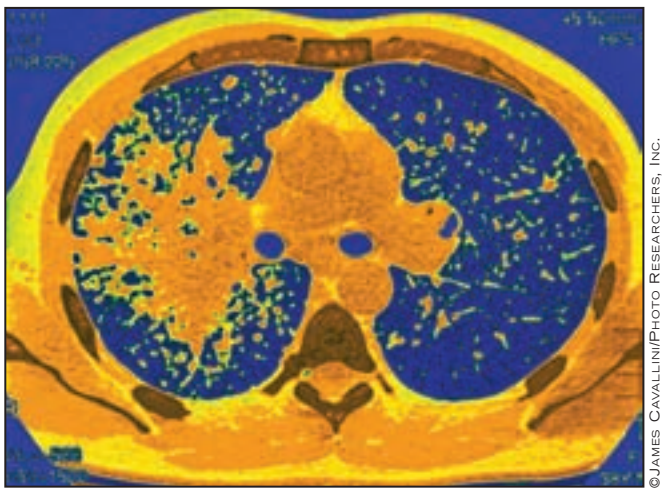
SNOWMASS, COLO. – Rheumatoid arthritis patients on tumor necrosis factor inhibitors are at markedly increased risk for both tuberculosis and nontuberculous mycobacterial lung disease, said Dr. Kevin L. Winthrop at a symposium sponsored by the American College of Rheumatology.

The crude incidence rate of nontuberculous mycobacterial disease among the 3.1 million members of Kaiser Permanente of Northern California during the study years of 2000-2008 was 4.1 cases/100,000 person-years. The risk rose with age such that among plan members aged 50 years or older the rate was 11.8 cases/100,000 person-years. Plan members with rheumatoid arthritis (RA) who had never been on a tumor necrosis factor (TNF) inhibitor had a moderately higher rate of 19.2 cases/100,000 person-years, probably because of their use of prednisone. But among 8,418 RA patients on TNF inhibitor therapy, the incidence of nontuberculous mycobacterial pulmonary disease shot up to 112 cases/100,000 person-years.

The tuberculosis incidence followed a similar pattern: 2.8 cases/100,000 person-years among the general Kaiser membership, 5.2 in those aged 50 years or older, 8.7 in RA patients never exposed to a TNF inhibitor, jumping to 56 cases/100,000 person-years among RA patients on an anti-TNF biologic, according to Dr. Winthrop.

In light of these data, physicians need to be on the lookout for nontuberculous mycobacterial pulmonary disease arising in RA patients using a TNF inhibitor.

"You will have patients with this. It's best to diagnose them early, if possible, and get them off their biologic and also limit or discontinue prednisone," said Dr. Winthrop, an infectious diseases specialist at Oregon Health and Science University, Portland.



©James Cavallini/Photo Researchers, Inc.

The incidence of pulmonary TB (seen above in right lung) has skyrocketed among patients on TNF inhibitors.

It's his clinical impression, as well as that of other physicians participating in the Infectious Diseases Society of America's Emerging Infections Network, that people who develop nontuberculous mycobacterial lung disease while on a TNF inhibitor tend to experience more rapid progression of their lung disease, he said at the meeting.

He and his coinvestigators at Kaiser also examined the pulmonary disease rates associated with individual TNF inhibitors. The nontuberculous mycobacterial lung disease rate in patients on etanercept was 35 cases/100,000 person-years of exposure, significantly less than the 116 cases/100,000 person-years with infliximab or 122 with adalimumab.

Similarly, the tuberculosis rate was lowest with etanercept at 17 cases/100,000 person-years as compared to 83 with infliximab and 61 with adalimumab.

The Kaiser experience confirms a 2010 report from the British Society for Rheumatology biologic registry that provided the first solid epidemiologic data showing that TNF inhibitors carry an increased tuberculosis risk.

In the U.K. study, etanercept use was associated with a tuberculosis incidence of 39 cases per 100,000 person-years, significantly lower than the 136 cases per 100,000 person-years with infliximab or 144 with adalimumab. In contrast, the tuberculosis rate among more than 3,200 RA patients on a conventional disease-modifying antirheumatic drug was zero. The background tuberculosis incidence in the United Kingdom during that period was about 12 cases/100,000 person-years (Ann. Rheum. Dis. 2010;69:522-8).

"I'm convinced that the monoclonal antibody TNF inhibitors [infliximab and adalimumab] cause more tuberculosis than [does] etanercept. I'm not convinced I know why," Dr. Winthrop admitted.

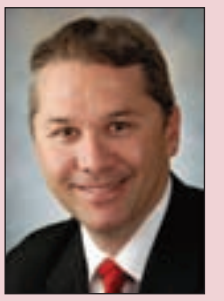
Numerous potential mechanisms have been floated to explain this differential effect. The two he finds most plausible are that etanercept is less able to penetrate tuberculosis granulomas than are the monoclonal antibody TNF inhibitors, as shown in a mouse model, and the possibility – as yet unproved – that etanercept might also cause less downregulation of CD8 cells producing the antimicrobial peptides perforin and granulysin, which are directed against *Mycobacterium* tuberculosis.

Dr. Winthrop said the epidemiology of nontuberculous mycobacterial pulmonary disease is changing. Decades ago, it was viewed as a disease of elderly men. As the incidence has climbed during the past 2 decades, however, the disease has come to be recognized as mainly one of postmenopausal women, typically with no history of underlying lung disease or smoking. The phenotype is one of an elderly woman who is tall and underweight, often with mitral valve prolapse, scoliosis, or pectus defects.

In a large study conducted at four large, geographically diverse health plans, the annual prevalence of nontuberculous mycobacterial lung disease among those aged 60 years or older rose from 19.6 cases/100,000 in 1994-1996 to 26.7 cases/100,000 person-years in 2004-2006, a rate two- to threefold greater than the prevalence of tuberculosis at those sites during 2004-2006 (Am. J. Respir. Crit. Care Med. 2010;182:970-6).

Dr. Winthrop reported having received consultant fees from Abbott, Amgen, and Pfizer as well as research funding from Pfizer. ■

COMMENTARY



Dr. Marcos Restrepo, FCCP, comments: The use of TNF inhibitors is a hot topic due to the increasing number of applications and the associated risk for TB and nontuberculous mycobacterial pulmonary infections. Therefore, studies like this one highlight the need for constant surveillance and guidelines that may assist clinicians in the care of these patients.

Thorough Workup Crucial in Sarcoidosis Cases

BY DOUG BRUNK
Elsevier Global Medical News

SAN DIEGO – While it's well known that sarcoidosis commonly affects pulmonary function, it's perhaps less known that the disorder can be detrimental to cardiac function in approximately 5% of cases.

"A common way that patients present with cardiac sarcoidosis is with sudden cardiac death," Dr. Misha Rosenbach said. "This is a terrible way to present to your doctor with a problem."

A multisystem disorder of unknown cause, sarcoidosis commonly affects young and middle-aged adults and frequently presents with bilateral hilar lymphadenopathy, pulmonary infiltration, and ocular and skin lesions. Other organs may be involved. The diagnosis is established when clinicoradiologic findings are supported by histologic evidence of noncaseating epithelioid cell granulomas.

"Sarcoidosis is primarily a pulmonary disease, but patients can also present with profound systemic symptoms," said Dr. Rosenbach of the departments of internal medicine and dermatology at the University of Pennsylvania, Philadelphia. "It's important to know what else can be affected."

Although pulmonary function is affected in more than 90% of cases, other commonly affected sites include the eyes (25%-50% of cases), lymph nodes (about 33%), musculoskeletal system (25%-40%), endocrine system (10%-25%), and liver (20%-50%). The initial evaluation should consist of history and physical exam, chest x-ray, pulmonary function tests (including carbon monoxide diffusing capacity), ophthalmologic examination, complete blood count and serum chemistries (including calcium), urinalysis, EKG (plus additional testing if there is a history of palpitations), tuberculin skin test (TST) or interferon (IFN)–gamma release assay, and thyroid and vitamin D testing.

"Patients with sarcoidosis often have low levels of 25-hydroxyvitamin D, but elevated levels of 1,25-dihydroxyvitamin D_3," Dr. Rosenbach said. "Inappropriate supplementation can lead to hypercalcemia."

For latent tuberculosis testing, the IFN-gamma release assay (IGRA) is thought to be more accurate than the TST, said Dr. Rosenbach, who is also director of the cutaneous sarcoidosis clinic at the University of Pennsylvania.

In terms of the impact of sarcoidosis on the thyroid gland, a recent analysis of a large database in the United Kingdom found that hyper- and hypothyroidism were twice as common in patients with sarcoidosis, compared with a control population (Postgrad. Med. J. 2009; 85:233-7). A more recent study of 50 patients with cutaneous sarcoidosis conducted by Dr. Rosenbach and his colleagues found that 25% of patients had abnormal thyroid laboratory test results (J. Am. Acad. Dermatol. 2012;66:167-8).

The precise association between sarcoidosis and malignancy remains unclear, he said, but the best available studies suggest that the incidence of lymphoproliferative disorder may be increased in patients with sarcoidosis.

A common stepwise approach for treating patients, Dr. Rosenbach said, begins with skin-directed therapies in the form of steroids or injections. The second step involves the use of antimalarials and tetracycline-class antibiotics. The third step involves methotrexate and/or prednisone, and the fourth step involves consideration for treatment with infliximab or adalimumab, Dr. Rosenbach said at the annual meeting of the American Academy of Dermatology.

Dr. Rosenbach disclosed that he was an investigator for a clinical trial sponsored by Centocor and Johnson & Johnson to investigate biologics for chronic/refractory sarcoidosis. ■

Pages 8a—8b

Care Hampered by Lack of Data

Deployment • *from page 1*

to characterize, Dr. Rose said. Some troops may have had particular job duties that placed them in much closer proximity to burn pit combustion products, while others have had multiple deployments that could suggest a dose-dependent effect.

In terms of a hallmark diagnostic clue, there isn't one, she said. Many veterans complain of dyspnea upon exertion and say they used to be able to run 2 miles in 14 minutes, but now can't even get close to passing the military's physical fitness requirements. A handful will have abnormal pulmonary function testing either at rest or with exercise, but there are also a substantial number with normal pulmonary tests and normal high-resolution computed tomography.

"Then the physician is in the challenging position of having to decide whether to send someone for a surgical lung biopsy to evaluate the possibility of constrictive bronchiolitis because you can't make that diagnosis without a biopsy," Dr. Rose said. The working group is attempting to create a standardized approach to diagnosis and a model for clinical centers of excellence where patients could be sent to undergo testing and assessment that would include consideration of surgical lung biopsy.

Physicians at Vanderbilt University in Nashville, Tenn., and Fort Campbell, Ky., had created just such a collaborative diagnostic protocol, but the referrals stopped after the working group convened in February 2010, said Dr. Robert F. Miller, a pulmonologist at the Vanderbilt-Ingram Cancer Center in Nashville. Instead of traveling the 30 or so miles from Fort Campbell to Vanderbilt, soldiers are now sent several hundred miles away to Fort Hood in Texas, "where you can pretty much be assured they are not going to get an invasive workup and are going to leave without a diagnosis or disability benefit," he added.

Together with colleague Dr. Matthew King, Dr. Miller published the largest case series to date in which open lung biopsy was used to diagnose 38 cases of constrictive bronchiolitis and 11 other lung ailments in 49 Fort Campbell soldiers with unexplained exertional dyspnea and normal pulmonary-function and cardiopulmonary-exercise testing (N. Engl. J. Med. 2011;365:222-30).

The findings have largely been embraced by the academic and wider medical community, but there was some criticism for the unorthodox use of the invasive test and the potential for bias because of the high diagnostic yield and use of two unblinded pathologists (N. Engl. J. Med. 2011;365:1743-5). Dr. Miller agreed that a lung biopsy is not the standard of care in this setting, but said they opted to use it "after seeing too many soldiers with the exact same story." To date, he's biopsied 66 soldiers, with 62 showing small airways disease, 3 sarcoidosis, and 1 normal.

Over the next 6 months, Dr. Rose and her associates will send 50 of the biopsies, along with both positive and negative control samples, to a panel of pathologists to develop a small airways scoring system. Dr. Miller doesn't expect 100% concordance with his results, but believes the DOD-funded research will validate Vanderbilt's findings of small airways disease.

"I talk to people every week just to validate what we've done, and there have been biopsies done all over the country that are finding the same thing in Nevada, Kansas, Colorado, Seattle, Chicago," he said. "So everybody is finding this, if they're looking for it."

Still, the biopsies are beginning to look a bit different. They still contain the same features of small airways narrowing, associated arteriopathy, and pigment deposits, but are more likely to have changes of inflammation and hypersensitivity than scarring, Dr. Miller said. One explanation is that part of his population may have been skewed up front because a lot of the soldiers seen early on were exposed to the Mishraq sulfur mine fires in 2003 – an argument raised by military officials who argued that this type of exposure is unique to the study cohort.

A recent case report by Dr. Anthony Szema, of the State University of New York at Stony Brook, identified titanium, iron, and copper in the lung biopsy of a soldier with nonspecific interstitial pneumonitis and bronchiolitis (J. Occup. Environ. Med. 2012;54:1-2).

Two other key recommendations from the working group are to institute predeployment respiratory testing, including spirometry, and to follow the troops longitudinally. Annual pulmonary function test data from World Trade Center firefighters has proved invaluable in assessing the impact of exposure, revealing a very acute and substantial decline in forced expiratory volume in 1 second (FEV_1), averaging 600 cc within the first 6 months after 911, typically followed by a return to the normal age-related decline in FEV_1, Dr. Rose says.

"We're really just starting to follow our patients now, so whether this is an acute decline that then stabilizes or whether this is a persistent accelerated decline in lung function, we just don't know," she admitted.

So far, pulmonary function testing has been relatively stable, although patients will typically say they are more short of breath, Dr. Miller said. When they've been able to check it, their exercise tests are getting worse, a change he suggests is probably better explained by deconditioning and weight gain than by progression and disease.

Dr. Miller said the best way to assess predeployment lung function is for each soldier to serve as his or her own control, but that it may not be practical to test everyone who is deployed. Still, if enough cardiopulmonary testing is performed, it may help determine how a soldier at a particular age, height, and weight with a specific 2-mile run time would correlate with a cardiopulmonary test. At the very least, the 2-mile run times should be put in the medical record, and that is not the case now, he said.

For their part, military officials have said they do not believe long-term respiratory problems will be an issue for the majority of troops deployed to Iraq and Afghanistan, and that predeployment spirometry is not warranted.

Although troops typically express relief at a diagnosis, the prognosis for constrictive bronchiolitis is grim. None of the patients have responded well to oral corticosteroids or, in a few cases, to second-line immunosuppressive drugs, Dr. Rose said.

Recent news reports are being used by veterans to push for better care, with one group, DisabledVeterans.org, recently launching a breathing survey to document soldiers' health and experience with the Department of Veterans Affairs.

The exact scope of the problem is unknown, but the financial ramifications for the government are potentially staggering, given the roughly 2 million troops deployed since 2001. The prospective DOD Millennium Cohort study reported respiratory problems in 14% of troops deployed to Iraq/Afghanistan and 10% of troops not deployed (Am. J. Epidemiol. 2009;170:1433-42), while a retrospective study by Dr. Szema reported respiratory symptoms requiring spirometry in 14.5% of Iraq/Afghanistan troops vs. just 2% of troops deployed elsewhere (J. Occup. Environ. Med. 2011;53:961-5).

For Dr. Miller, it has become a matter of advocacy. "What these guys sacrifice is incredible, even when they're not injured, and they deserve better than what they're getting when they're injured, whether it's loss of limb, PTSD, or a lung injury," he said. "I hope we can prevail in what we're doing." ■

COMMENTARY

Dr. Stuart Garay, FCCP, comments: There is little knowledge regarding "deployment-related lung diseases." As the troops have returned from Iraq and Afghanistan, more patients are presenting with unusual respiratory diseases. Most clinicians have little expertise in this area. We owe it to those who have served our country to provide them with state-of-the-art care. A forthcoming white paper supports creation of centers of excellence to handle these difficult diagnostic problems in our veterans.

FDA Panel Recommends Changes to Influenza Vaccine

BY ELIZABETH MECHCATIE

Elsevier Global Medical News

SILVER SPRING, MD. – A Food and Drug Administration advisory panel recommended that the vaccine for the next influenza season should include two new strains and retain only one of the three strains in the current vaccine.

The FDA's Vaccines and Related Biological Products Advisory Committee voted 18-0 that the 2012-2013 seasonal flu vaccine used in the United States should include the same influenza A (H1N1) component included in the 2011-2012 vaccine, an A/California/7/2009 (H1N1)-like virus. For the second influenza A strain in the vaccine, the panel's vote was also unanimous, recommending that the influenza A (H3N2) component be replaced with an A/Victoria/361/2011 (H3N2)-like virus.

The panel voted 17-1 that that the influenza B strain be replaced with a B/Wisconsin/1/2010-like virus (B/Yamagata lineage). The current vaccine strain is a B/Brisbane/60/2008-like virus, a B/Victoria lineage strain. Panelists pointed out, however, that determining which B strain to select, a Victoria or Yamagata lineage B strain virus, is always challenging and said that this illustrated the utility of a quadrivalent influenza vaccine that contains B/Victoria lineage and B/Yamagata lineage viruses.

A quadrivalent influenza vaccine may soon be available, possibly as early as 2013. At the meeting, representatives of several vaccine manufacturers provided updates on the status of their quadrivalent influenza vaccines in development, including GlaxoSmithKline, which has filed for FDA approval of a quadrivalent influenza vaccine for people aged 3 and older.

The FDA panel's recommendations are the same as the World Health Organization's recommendations for the 2012-2013 Northern Hemisphere seasonal influenza vaccine.

The FDA panel meets at the same time every year to recommend the strains to be included in the trivalent influenza vaccine in the United States in the upcoming season, considering information on the strains circulating worldwide and the WHO recommendation for the vaccine to be used in the Northern Hemisphere.

This influenza season has started late, in February, and flu activity has been low, although it is expected to increase, the Centers for Disease Control and Prevention announced.

The FDA usually follows the recommendations of its advisory panels. Panelists have been cleared of potential conflicts of interest related to the topic of the meeting. ■

Repeat Lavage Advised With Prolonged VAP Therapy

BY DIANA MAHONEY
Elsevier Global Medical News

VITALS

Major Finding: Repeat bronchoalveolar lavage (BAL) of 37 patients after 8 days of appropriate antimicrobial therapy indicated that 69% of patients with non–lactose fermenting gram-negative rods had persistent primary infection, compared with 8% of patients with all other pathogens.

Data Source: Results came from a retrospective study of 77 patients with BAL-diagnosed ventilator-associated pneumonia who underwent repeat BAL while on antibiotic therapy at a level I trauma center.

Disclosures: The investigators reported having no relevant financial disclosures.

HOUSTON – Repeat bronchoalveolar lavage should be considered for tailoring the duration of antibiotic therapy and for reassessing resistance profiles in patients with ventilator-associated pneumonia from infection with non–lactose fermenting gram-negative bacilli.

New clinical evidence endorses prolonged antibiotic therapy in these patients. Importantly, the findings also indicate that these patients have persistent primary infections, rather than recurrent infections, as has been previously suggested, Dr. Gina R. Shirah reported at annual meeting of the Society for Critical Care Medicine.

The distinction between persistent and recurrent infection is important, she emphasized, as the former may signal drug resistance. For this reason, repeat bronchoalveolar lavage (BAL) should be considered during therapy, both to tailor duration of antibiotics and reassess for changes in resistance profiles.

The American Thoracic Society recommends an 8-day antimicrobial treatment protocol for ventilator-associated pneumonia (VAP) but advises a longer course of therapy in patients with non–lactose fermenting gram-negative rods (NLF-GNR), which include *Pseudomonas aeruginosa*, *Acinetobacter baumannii*, and *Stenotrophomonas maltophilia* (Am. J. Respir. Crit. Care Med. 2005;171:388-416). The recommendation is based on the findings of a randomized study that showed 8 days of treatment to be as effective as 15 days except in patients with NLF-GNR, who had higher recurrence rates (JAMA 2003;290:2588-98).

In the study by Dr. Shirah and colleagues at the Maricopa Integrated Health System in Phoenix, 8-day antibiotic regimens were associated with persistent primary infections, not recurrent infections, in patients with gram-negative bacilli.

The researchers retrospectively studied patients at a level I trauma center admitted over a 4½-year period. They examined data for all VAP patients who were diagnosed via BAL and who underwent subsequent BAL during the antimicrobial treatment course. Based upon initial BAL pathogen, the patients were classified into two groups: those with NLF-GNR and those with all other pathogens, including Enterobacteriaceae, methicillin-resistant *Staphylococcus aureus*, and community-acquired *Haemophilus spp*, methicillin-sensitive *S. aureus*, and *Streptococcus spp.* They were then further divided based on whether the repeat BAL was conducted within 8 days of appropriate antibiotic therapy or at day 8 or later, Dr. Shirah said.

Of the 77 surgical ICU patients who met the criteria, 99% received appropriate empiric therapy. Subsequent BAL was done an average of 7 days later (range 3-14 days), with 37 patients undergoing the procedure after 8 days of therapy; of those, 13 patients were in the NLF-GNR group. Within that group, persistent primary infection after more than 8 days of appropriate antimicrobial therapy was reported in nine patients (69%) – seven with *P. aeruginosa* and two with *A. baumannii*.

By comparison, only two patients in the second group (8%) – both with Enterobacteriaceae – had evidence of persistent primary infection, representing a statistically significant difference, she said. "Importantly, in the [NLF-GNB] group, 56% of the pathogens obtained on repeat BAL remained sensitive to the treatment antibiotics, so nearly half of the patients required alternative antibiotic treatment."

The investigators also sought to determine whether persistent infection could have been predicted. They separated patients into three groups based on treatment status: treated; persistently infected antimicrobial sensitive; and persistently infected antimicrobial resistant. A comparison of clinical parameters showed that although there was some variation in white blood cell count, temperature, and ventilator needs, "none of the differences were statistically significant," and thus not predictive of short-course treatment success or persistent infection, Dr. Shirah said.

The data strongly support the conclusion that a shortened course of antibiotics in patients with VAP caused by NLF-GNR will frequently lead to a persistent primary infection, said Dr. Shirah, noting that, in the case of NLF-GNR, "changes in antibiotic profiles are common and without reliable clinical indicators." For this reason, she stressed, repeat BAL should be considered during therapy, both to tailor duration of antibiotics and to reassess for changes in resistance profiles.

"Eight days is simply not enough," Dr. Shirah said. ■

COMMENTARY

Dr. Marcos Restrepo, FCCP, comments: The observation that follow-up bronchoalveolar lavage in trauma patients with VAP due to non–lactose fermenting gram-negative rods may require longer duration of antimicrobial therapy is something that requires further evaluation. The main concern is that microbiologic-persistent VAP due to NLF-GNR infections may be associated with the change of antibiotics and lead to worse clinical outcomes. Due to the natural complexity of critically ill patients infected with NLF-GNR VAP, "one size does not fit all" regarding the duration of antibiotic therapy in this group of patients.

Respiratory Infections Raise Mortality in Status Epilepticus

BY MICHELE G. SULLIVAN
Elsevier Global Medical News

BALTIMORE – Patients who acquired a nosocomial infection during their hospital stay for status epilepticus had five times greater odds of dying than did noninfected patients in a single-center, observational cohort study.

The infections, most of which involved the respiratory tract, also were associated with having treatment-refractory status epilepticus, a longer ICU stay, and a worse overall outcome, Dr. Raoul Sutter said at the annual meeting of the American Epilepsy Society.

Dr. Sutter and his coinvestigators could not identify a reliable one-time marker for indicating the presence of infection at the onset of status.

He and his colleagues studied a cohort of 160 patients hospitalized for status epilepticus at University Hospital Basel (Switzerland) during a 5-year period. Their median age was 65 years (range 17-91 years), and more than half (55%) required mechanical ventilation.

About 22% of the cohort developed an infection during the first 3 days of hospital stay. Patients with an infection had a significantly longer ICU stay (mean of 11 days vs. 6 days) and five times greater odds of dying than did patients without infections, according to the study's findings, which Dr. Sutter presented in two posters at the meeting.

Most of the infections involved the respiratory tract, with half being ventilator-associated pneumonia. Compared with patients without infections, patients with respiratory tract infections had a significantly longer duration of status (mean 7 vs. 2 days) and a longer ICU stay (mean 11 vs. 7 days). These infections also were associated with a significant increase in the odds of developing refractory status (odds ratio, 5.4) and dying (OR, 4). A majority (59%) with refractory status and an infection died (59%).

"Time of onset of infectious complications during status epilepticus was a critical element in outcome," he said in an interview. "Patients who had a confirmed infection before admission had no significant increase in the risk of refractory status or death."

Early detection and treatment of infectious complications may mitigate their deleterious effects on these critically ill patients. Because early detection in this setting can be challenging, biomarkers could be useful for their diagnosis, said Dr. Sutter, who conducted the research while he was a member of the departments of neurology and intensive care medicine at University Hospital Basel (Switzerland). He is now a research fellow in the neurosciences critical care unit at Johns Hopkins University, Baltimore.

In a search for a biomarker to indicate the presence of infection at the onset of status, the investigators found that serum procalcitonin, C-reactive protein (CRP), or white blood cell count did not accurately predict an oncoming hospital-acquired infection. However, a serial increase in CRP and white blood cell count over 3 days after status onset was significantly associated with infection.

Low levels tended to rule out infections. The negative predictive value of a low CRP over 3 days was 97%, but specificity remained low and did not improve despite using several cut-off values.

The Society for Healthcare Epidemiology of America and the Infectious Diseases Society of America have issued practice recommendations to reduce the risk of ventilator-associated pneumonia. In addition to minimizing mechanical ventilation, the recommendations suggest measures to reduce colonization of the aerodigestive tract and to prevent aspiration.

Dr. Sutter reported having no financial disclosures. ■

COMMENTARY

Dr. Stephen Field, FCCP, comments: As with many good studies, this one confirms what indirect epidemiology would have led one to conjecture – that patients with status epilepticus are prone to developing pneumonia and that the consequences of that pneumonia can be dire. This finding was relatively predictable, as loss of consciousness and control of upper airway function, along with increased intra-abdominal pressure, provide an open pathway for lung infections. Unfortunately, biomarkers failed to adequately show the early onset of pneumonia, so we are left with maintaining a high index of suspicion, using the best available preventive measures, and early, aggressive treatment of infection.

Sepsis Diagnoses Up in Tandem

Pneumonia • *from page 1*

data from the 2003 through the 2009 Nationwide Inpatient Sample (NIS), the largest all-payer hospital database in the country, which covers between 5 million and 8 million discharges each year. The NIS is sponsored by the U.S. Agency for Healthcare Research and Quality.

The researchers assessed hospitalizations for a principal diagnosis of pneumonia, as well as for a principal diagnosis of sepsis or respiratory failure together with a secondary diagnosis of pneumonia. For control conditions, they assessed hospitalizations for a principal diagnosis of ischemic stroke, ST-segment elevation myocardial infarction (STEMI), and ruptured thoracic or abdominal aortic aneurysms.

"We also considered change over time in discharge disposition, including discharge to hospice, as a secondary outcome because increasing referral to inpatient nursing and rehabilitation facilities and hospice might allow sicker patients to be discharged rather than retained in the hospital," Dr. Lindenauer and his colleagues noted.

From 2003 to 2009, the hospitalization rate of patients with a principal diagnosis of pneumonia decreased by 27.4%, from 5.5 per 1,000 to 4.0 per 1,000. This reversed "a well-documented decades-long trend toward increasing hospitalization" for pneumonia, the investigators said (JAMA 2012;307:1405-13).

During the same period, however, the hospitalization rate for patients with a principal diagnosis of sepsis and a secondary diagnosis of pneumonia rose 177.6%, from 0.4 per 1,000 to 1.1 per 1,000. And the hospitalization rate for patients with a principal diagnosis of respiratory failure and a secondary diagnosis of pneumonia rose 9.3%, from 0.44 per 1,000 to 0.48 per 1,000.

'WHEN THE THREE GROUPS WERE COMBINED ... THERE WAS LITTLE CHANGE IN THE INPATIENT MORTALITY RATE.'

These trends were consistent across all age groups and for both men and women.

During the same period, inpatient pneumonia mortality declined from 5.8% to 4.2%, a relative risk reduction (RRR) of 28.2%. There was a concomitant decline in inpatient sepsis mortality (RRR, 12%) and in inpatient respiratory failure mortality (RRR, 23.7%).

However, "when the three groups were combined ... there was little change in the inpatient mortality rate, varying from a small increase to a small decline, depending on the approach to risk adjustment," Dr. Lindenauer and his associates said.

As expected, the reductions in inpatient hospitalizations for the three control conditions were significantly smaller than those for pneumonia hospitalizations. Ischemic stroke, STEMI, and ruptured aortic aneurysms were indeed "less susceptible to secular changes in the choice of an alternative principal diagnosis," they pointed out.

Also as expected, the proportion of pneumonia patients who were discharged to nursing facilities and hospices did not account for the large decline in pneumonia inpatients.

The results of the primary analysis in this study were supported by those of a secondary analysis of bacteriologic types. Hospitalization rates for pneumococcal, pseudomonas, and staphylococcal pneumonias all declined to a similar extent as overall pneumonia and were offset by matching increases in the rates of sepsis due to these organisms.

The study findings have important implications well beyond the scope of pneumonia. "Several recent studies have reported very rapid growth in the rate of hospitalizations of patients with sepsis and severe sepsis, suggesting that the phenomenon in this study" may extend to many other infectious diseases, they said.

Turning to the question of why clinicians might be switching from a principal diagnosis of pneumonia to a principal diagnosis of sepsis/secondary diagnosis of pneumonia, Dr. Lindenauer and his colleagues offered two possible explanations. First, there was a well-publicized national campaign advocating the early recognition and treatment of sepsis in 2002. Second, hospital reimbursement rates for sepsis and respiratory failure are higher than those for pneumonia, they noted.

The authors reported having no conflicts of interest. ■

COMMENTARY

Dr. Marcos Restrepo, FCCP, comments: Better care is not the only reason why there are improving rates of hospitalization and deaths in pneumonia patients. A presumed reduction in pneumonia hospital admissions and deaths seems to be driven by coding more primary diagnosis as sepsis and respiratory failure. Coding pneumonia as a secondary diagnosis is affecting the epidemiology of pneumonia hospitalizations and mortality in the United States.

Sleep Disorders May Be Redefined

DSM-5 • *from page 1*

third and final round of comments. As before, comments will be systematically reviewed by each of the work groups for part of their consideration of additional changes.

"We are trying very much to propose a classification and a set of criteria that are friendly [and] clinically useful for the ... general medical clinician," said Dr. Reynolds, also professor of behavioral and community health sciences at the university's graduate school of public health. "At the same time, our hope is that with these criteria and with the accompanying text, the general user will feel more confident about when to consult a sleep disorder specialist."

Sleep disorders per se are frequently accompanied by depression, anxiety, and other cognitive mental status changes that must be addressed in treatment planning and management. The differential diagnosis of complaints such as insomnia and daytime sleepiness necessitates consideration of coexisting medical and neurologic conditions, and requires a multidimensional approach. "Coexisting clinical conditions are the rule, not the exception," he noted at the annual meeting of the American Association for Geriatric Psychiatry.

The proposed DSM-5 criteria replace terminology that causally attributes coexisting conditions with a simple listing of the comorbidities. This was done to underscore that the patient has a sleep disorder warranting independent clinical attention in addition to any psychiatric and medical disorders also present. In addition to the switch from "primary insomnia" to "insomnia disorder," the diagnoses of "sleep disorder related to another mental disorder" and "sleep disorder related to a general medical condition" also are proposed to be dropped in favor of "insomnia disorder" or "hypersomnia disorder," along with specification of clinically comorbid medical and psychiatric conditions.

This approach acknowledges bidirectional or interactive effects between sleep disorders and coexisting psychiatric conditions such as depression.

COURTESY DR. MARK D. MILLER

"Our hope is that with these criteria ... the general user will feel more confident about when to consult a sleep disorder specialist," Dr. Charles F. Reynolds III said.

It also has implications for treatment. For example, a patient who has persistent insomnia even after adequate treatment for depression might be at increased risk for relapse of the depression, or for worsening of cognitive impairment, and might therefore require independent evaluation of the sleep problem, Dr. Reynolds noted.

In an effort to improve diagnostic precision, use of "insomnia not otherwise specified" is proposed to be reduced by elevating both "REM sleep behavior disorder" and "restless legs syndrome" to full-fledged diagnoses. This recommendation is based on a large amount of epidemiologic, pathophysiologic, genetic, and controlled clinical trial data, he said.

Another proposal is to further subtype circadian rhythm sleep disorders into delayed sleep phase type; advanced sleep phase type; and irregular sleep–wake type, –free-running type, –jet lag type, and –shift work type. Yet another proposal would subtype breathing-related sleep disorder into obstructive vs. central in order to inform treatment planning.

Other major proposed changes include distinguishing narcolepsy/hypocretin deficiency from other forms of hypersomnia disorder, which illustrates the increased emphasis on using biomarkers in the DSM-5 where doing so would be scientifically appropriate and clinically practical, he noted.

An example of the effort to move away from expert opinion to evidence-based diagnostic criteria is the proposed "primary hypersomnia/narcolepsy without cataplexy" category.

In the DSM-IV, the criteria are "unexplained hypersomnia (excessive sleep) or/and hypersomnolence (sleepiness in spite of sufficient nocturnal sleep), for at least 3 months, occurring 3 or more times per week," with "hypersomnia" defined by a prolonged nocturnal sleep episode or daily sleep amounts (more than 9 hours/day).

In the proposed DSM-5 revision, the definition of hypersomnia includes the following thresholds: excessive sleepiness that occurs three or more times per week, for 3 or more months, despite a main sleep cycle lasting 7 hours or longer. Evidence supporting this definition comes from a recent cross-sectional telephone survey of 15,929 individuals who were representative of the adult general population of 15 U.S. states. A total of 27.8% reported "excessive sleepiness," and 15.6% had recurrent periods of irrepressible need to sleep or to nap within the same day (13.2%); recurrent naps within the same day (1.9%); a nonrestorative (unrefreshing), prolonged main sleep episode of 9 hours or more per day (0.7%); and/or confusional arousals (sleep drunkenness) (4.4%).

Adding in the "excessive sleep" definition – frequency of at least three times per week for at least 3 months, despite normal sleep duration – dropped the hypersomnia disorder prevalence to 4.7% of the sample. Adding in "significant distress or impairment in cognitive, social, occupational, or other important areas of functioning" further dropped the prevalence to 2.6%, and the differential "hypersomnia is not better accounted for or does not occur exclusively during the course of another sleep disorder" gave a final prevalence of 1.5% (Arch. Gen. Psychiatry 2012;69:71-9).

"This is a threshold for significant daytime distress/impairment that warrants diagnosis. This kind of empirical basis is something we've pursued throughout DSM-5 in order to make it less dependent on expert opinion and be more data driven," Dr. Reynolds commented.

Dr. Reynolds disclosed that he has received funding from the National Institute of Mental Health; the National Institute on Aging; the National Center on Minority Health and Health Disparities; the National Heart, Lung, and Blood Institute; the John A. Hartford Foundation; the American Foundation for Suicide Prevention; the Commonwealth of Pennsylvania; and the UPMC Endowment in Geriatric Psychiatry. Forest Laboratories, Pfizer, Lilly, and Bristol-Myers Squibb have provided pharmaceuticals for his National Institutes of Health–sponsored research. ■

COMMENTARY

Dr. Paul Selecky, FCCP, comments: We welcome and look forward to an update and revision of the DSM-5 system, making it more user friendly and based on data rather than expert opinion.

Low-Dose Melatonin Normalizes Sleep Schedules

BY M. ALEXANDER OTTO
Elsevier Global Medical News

PHOENIX – When sleep cycles are out of synch with the rest of the world, melatonin and light therapy can help.

But for night owls – people who fall asleep at 5 a.m. and awake at noon, for instance – it's important to use a low dose of melatonin, 0.5-1 mg, and it should be given around 7 p.m., 4-5 hours before their desired sleep time, according to Dr. Phyllis Zee, associate director of the Northwestern University Center for Sleep and Circadian Biology in Evanston, Ill .

Bedtime "is not when you give melatonin," she said at a meeting on sleep medicine sponsored by the American College of Chest Physicians. A small dose is better than a larger one for moving internal sleep clocks forward and less likely to make people sleepy in the early evening.

Night owl patients are clinically described as having a delayed sleep phase disorder, a circadian rhythm problem. Bright light therapy in the early morning, around the time when they would like to wake up, also helps.

Light and melatonin have strong, but opposite, effects on the suprachiasmatic nucleus (SCN), thought to be the brain's internal clock. Light, especially blue light, increases SCN firing, alerting the body. Melatonin, secreted by the pineal gland under SCN control on a 24-hour cycle, decreases SCN firing, promoting sleep.

Dim light triggers melatonin secretion; endogenous levels begin to rise about 2 hours before sleep, a phenomenon known as dim-light melatonin onset (DLMO). Melatonin supplements help the rise come earlier in night owls, who should also avoid bright light in the evening.

The role of melatonin is uncertain in people with an advanced sleep phase disorder – those who routinely fall asleep at 7 p.m., for instance, and awake at 4 a.m. – but bright light therapy early in the evening can push back their sleep schedule. "In someone with advanced sleep phase, that's what I would do first – bright light therapy in the evening," Dr. Zee said.

Patients with circadian sleep disorders don't have insomnia. Once asleep, they get a full night's rest.

Even so, being out of synch with the world can cause problems. People with delayed phase disorders can barely get out bed for work, and when they do, they're sleepy all day. An advanced phase person's internal clock tells that person to go to bed when the rest of the world is still active. Such misalignments can trigger actual insomnia and lead to health problems. Delayed phase disorders also correlate with depression.

"Many people who we think have primary insomnia or psychological insomnia actually have delayed or advanced circadian phases. It isn't so much they complain about insomnia; they really complain about excessive sleepiness," Dr. Zee said.

To make the right therapeutic call, it's important to know the timing of patients' internal clocks. History gives a clue. "I've never met a delayed person who is not an owl. I've never met an advance sleep phase disorder person who is not a lark," Dr. Zee said.

A sleep diary and actigraphy can also help. During DLMO therapy in a sleep lab, melatonin concentrations are assessed from patients' saliva. DLMO usually occurs at about 9 p.m. for someone on an 11 p.m.-7 a.m. sleep schedule.

Dr. Zee is a consultant for Sanofi-Aventis, Merck, Johnson & Johnson, UCB Pharma, Purdue Pharma, Jazz Pharmaceuticals, and Royal Philips Electronics/Respironics. She also disclosed stock options in Zeo. ■

COMMENTARY

Dr. Paul Selecky, FCCP, comments: Dr. Zee is a national expert in circadian rhythm sleep disorders, and she brings to light the fact that some patients complaining of insomia might very well have a biological clock that is out of synchrony with the patient's desired sleep-wake schedule. Hypnotics are not the answer. Apply the principles of normal sleep.

Could Everyone Just Be Quiet, Please?

In an effort to confirm previous observations that noisy hospital rooms keep inpatients from getting quality sleep, medical student Jordan C. Yoder and colleagues, under the direction of Dr. Vineet M. Arora of the Sleep, Metabolism, and Health Center at the University of Chicago, sought to objectively measure noise and sleep duration in ambulatory adult hospital patients at the university's medical center.

They collected sleep and sound data from 106 consenting patients between April 2010 and May 2011, excluding individuals with known sleep disorders, those with cognitive impairment, and those under respiratory isolation or who had been admitted for more than 72 hours (Arch. Intern. Med. 2012;172:68-9).

They found that patient room noise levels were significantly higher than the World Health Organization's recommendations for average noise levels. Further, peak noise level "approached that of a chain saw," according to their research letter. Nighttime sound levels were lower than daytime levels, but all still significantly exceeded recommendations for maximum noise level and 94% exceeded recommendations for average noise level.

More than 40% of the patients reported noise disruptions of sleep.

Sleep actigraphy data demonstrated that "patients slept significantly less in the hospital than their self-reported baseline sleep," the authors observed, and mean sleep efficiency when hospitalized was low, with more than half of the recorded nights measuring below the normal lower boundary of 80% efficiency for adults.

While roommates, alarms, intercoms, and pagers were all associated with substantial percentages of noise disruption, the most disruptive source of environmental noise, it appears, was chatty staffers, as the percentage of noise disruption attributed to staff conversation was 65%.

Dr. Arora noted that "some amount of sleep loss in the hospital may be expected given the unfamiliar environment." In fact, she said in an interview, "our next studies are actually looking at this and the component that may be driven by loss of control or stress."

'Hospitals should implement interventions to reduce nighttime noise levels in an effort to improve patient sleep.'

DR. ARORA

In the current study, however, "patients lost more sleep in the hospital when noise levels were loudest after accounting for baseline sleep characteristics, so at least noise seems like an independent predictor of hospital sleep, highlighting the importance of optimizing the hospital environment." The magnitude of the difference, she explained, is 1 hour less of sleep, "which is pretty significant." Further, patients in noisier rooms reported more complaints, indicating that noise is an issue, she said.

Based on their findings, the authors concluded that "hospitals should implement interventions to reduce nighttime noise levels in an effort to improve patient sleep." One possibility, Dr. Arora suggested, is a device called a Yacker Tracker, which measures noise and provides feedback to the staff about when the noise level exceeds a certain threshold.

And now that patient report of noise is a reported measure on Medicare's Hospital Compare, it will be in the best interest of hospitals as well as patients to implement noise-reduction measures, Dr. Arora noted. "Noisy hospitals will want to optimize patient noise to provide the best experience possible," she said.

–Diana Mahoney

Adding a Benzodiazepine May Improve Dyspnea

BY BRUCE JANCIN
Elsevier Global Medical News

DENVER – Low-dose adjunctive benzodiazepines are effective in combination with opioids for dyspnea in palliative care patients who don't respond to opioids alone, said Dr. Patama Gomutbutra.

When opioids alone aren't bringing significant improvement, adding a benzodiazepine is worthwhile, she said. The question of whether benzodiazepines alone are effective in the management of dyspnea must await answers from randomized clinical trials.

VITALS

Major Finding: At follow-up 24 hours after adjustment of dosages or addition of an opioid or a benzodiazepine, the population with severe dyspnea had fallen from 19% to 4%. Dyspnea was rated moderate in 18% and mild in 44%, and was absent in 34%.

Data Source: Data were taken from a retrospective chart review of 303 inpatients with dyspnea evaluated by members of the University of California, San Francisco, palliative care program.

Disclosures: Dr. Gomutbutra reported having no financial conflicts.

Dr. Gomutbutra conducted a retrospective chart review of 303 inpatients with dyspnea evaluated by members of the University of California, San Francisco, palliative care program. These were seriously ill patients: 23% had primary lung cancer, 32% had cancer outside the lung, 12% had heart failure, and 7% had COPD. Of these patients, 47% died in the hospital and 25% were discharged to hospice.

At baseline, physicians rated dyspnea as severe in 19% of patients, moderate in 28%, and mild in 53%. At baseline, 49% of patients were already on opioids at a median dose of 52 mg/day; 87% of these patients remained on opioids at 24 hours at a median of 60 mg/day. Of the patients not initially taking an opioid, 41% were placed on the medication at a median dose of 22 mg/day, Dr. Gomutbutra said at the annual meeting of the American Academy of Hospice and Palliative Care Medicine.

At baseline, 17% of patients were on a benzodiazepine equivalent to a median dose of 1 mg/day of oral lorazepam.

At follow-up 24 hours after adjustment of dosages or addition of an opioid or a benzodiazepine, the population with severe dyspnea had fallen from 19% to 4%. Dyspnea was rated moderate in 18% and mild in 44%, and was absent in 34%.

Overall, 57% of patients had a clinically meaningful improvement in dyspnea of one severity grade or more, 37% remained the same, and only 6% had worse pain, according to Dr. Gomutbutra of Chiang Mai (Thailand) University.

Taking an opioid and a benzodiazepine at follow-up was independently associated with a 2.1-fold increased likelihood of significant improvement in dyspnea. Having moderate or severe dyspnea at baseline was associated with 4.1- and 4.5-fold increased likelihoods of improvement, respectively.

Surprisingly, being on an opioid at baseline wasn't associated with significant improvement at follow-up, even though opioids are guideline-recommended therapy for dyspnea.

Dr. Gomutbutra cautioned that her study was retrospective and thus vulnerable to confounding. For example, the respiratory rate typically slows near death, so patients may not have received continued doses of opioids. "Our results should not dissuade people from using opioids as the first-line treatment," she emphasized. ■

COMMENTARY

Dr. Vera De Palo, FCCP, comments: The clinician is always searching for ways to help relieve pain and improve the quality of life in patients at the end of life. Taking a lesson from our oncology and intensive care colleagues, combination treatment is likely to be a useful modality to achieve these goals.

Routine Oxygen at End of Life Usually Not Needed

BY BRUCE JANCIN
Elsevier Global Medical News

DENVER – The routine administration of oxygen to terminally ill patients who are near death is unwarranted, according to the results of a randomized trial.

"If oxygen does reduce their distress, that patient should have oxygen, but if it does not – if there's no change in patient distress – oxygen can be discontinued, or certainly not initiated in the first place," Mary L. Campbell, Ph.D., said at the annual meeting of the American Academy of Hospice and Palliative Care Medicine.

Oxygen has well-established benefits in hypoxemic patients with exacerbations of an underlying pulmonary condition, but without ever having been subjected to scientific scrutiny, oxygen administration has become routine for patients who are near death, said Dr. Campbell of Wayne State University, Detroit. "Oxygen has become almost an iconic intervention at the end of life – as common as golf clubs on a Wednesday afternoon," she said.

To assess the value of routine oxygen administration, she conducted a double-blind, randomized, crossover study involving 32 terminally ill patients. None was in respiratory distress at baseline, but all were at high risk for distress because of underlying conditions.

Each patient received a capnoline to capture exhaled carbon dioxide. Next, randomly alternating 10-minute intervals of oxygen, medical air, and no flow were administered for 90 minutes. The key finding: 29 of 32 patients experienced no distress during the 90-minute protocol, indicating that they didn't need the oxygen. Yet, at enrollment, 27 patients had oxygen flowing, reflecting this widespread clinical practice at the end of life, Dr. Campbell said. The remaining three patients rapidly became hypoxemic and distressed when crossed over from oxygen to no flow. They were returned to baseline oxygen and respiratory comfort.

To assess need for oxygen in end-of-life patients, Dr. Campbell stops oxygen for 10 minutes and watches for distress.

The study was funded by the Blue Cross/Blue Shield of Michigan Foundation. Dr. Campbell reported having no financial conflicts. ■

COMMENTARY

Dr. Steven Simpson, FCCP, comments: Oxygen therapy at the end of life should be administered only to relieve patients' dyspnea. This study helps emphasize that and suggests that if dyspnea is not relieved by oxygen administration, the treatment should be discontinued. However, in patients who are already receiving supplemental oxygen and who are comfortable, the benefit(s) of discontinuing oxygen do not seem to outweigh the risk of potentially engendering dyspnea in the terminal stage of life. More study is in order before that course of action could be recommended.

ASCO Urges Early Palliative Care in Metastatic Cancers

Patients receiving palliative care had significantly better quality-of-life scores.

BY NEIL OSTERWEIL
Elsevier Global Medical News

Compelling evidence from a recent randomized trial has prompted the American Society of Clinical Oncology to recommend that palliative care be integrated early on into standard cancer therapies for patients with metastatic cancers or a high burden of cancer symptoms.

Potentially practice changing, the opinion is based on the best currently available clinical evidence. Palliative care is typically relegated to the final days of life of patients with advanced metastatic cancers, as it is provided only after all other options have failed.

Authors of the opinion, intended to offer guidance to oncologists on this issue, cite a study published in 2010 (N. Engl. J. Med. 2010;363:733-42). The study showed that patients who were randomized to palliative care plus standard therapy for metastatic non–small cell lung cancer (NSCLC) had significantly longer overall survival than did patients randomized to standard care alone, (11.6 vs. 8.9 months, $P = .02$), even though the palliative care group had less aggressive end-of-life care.

Patients receiving palliative care also had significantly better quality-of-life scores on a standardized assessment scale, and significantly fewer had depressive symptoms, compared with patients on standard care.

"While a survival benefit from early involvement of palliative care has not yet been demonstrated in other oncology settings, substantial evidence demonstrates that palliative care – when combined with standard cancer care or as the main focus of care – leads to better patient and caregiver outcomes. These include improvement in symptoms, quality of life, and patient satisfaction, with reduced caregiver burden," wrote Dr. Thomas J. Smith and his colleagues in an American Society of Clinical Oncology (ASCO) provisional clinical opinion published online n the Journal of Clinical Oncology (doi:10.1200/JCO.2011.38.5161).

Palliative care also eases patients and families through the anguish of dashed hopes and has the potential to reduce costs by limiting expensive but often futile intensive hospital-based services, the authors wrote.

"All the data suggest that there's absolutely no harm from earlier integration of hospice and palliative medicine into patient care. A couple of trials have shown improved survival, and there are very good data from observational studies that people who use hospice actually live longer," Dr. Smith said in an interview. He is director of palliative care for Johns Hopkins University and Hopkins' Sidney Kimmel Comprehensive Cancer Center in Baltimore.

"I think that ASCO is sending a really strong message to oncologists that we need to do more than we're currently doing and that comprehensive cancer care needs to include supportive care on top of cancer-directed therapy," said Dr. Jennifer S. Temel, clinical director of thoracic oncology at Massachusetts General Hospital in Boston, and lead author of the randomized trial described earlier.

She noted, however, that the study was not powered to detect an overall survival benefit. "All we were hoping for was that early palliative care didn't lead to a survival detriment. … People could have been concerned that because of the involvement of palliative care, patients would receive less-intensive therapy and have shorter survival," Dr. Temel said. "I'm just very happy that's not what we saw, but whether the survival benefit we saw was real and will be replicated, we'll have to wait and see."

'Substantial evidence [shows] that palliative care … leads to better patient and caregiver outcomes.'

DR. SMITH

The primary value of the study, she added, is that it demonstrated distinct benefits of palliative care on patient mood and quality of life.

The Will but Not the Way?

But many practices, particularly those in community settings, may not have the resources to provide a full complement of palliative care services, said an oncologist in community-based practice.

"Those types of palliative care options are not widely available, and they certainly aren't available in smaller communities," said Dr. Patrick Cobb, managing partner at the Frontier Cancer Center in Billings, Mont.

Services required for effective palliative care, such as patient and family counseling, are not typically reimbursed under current payments systems. In addition, palliative care reimbursement is often an "either/or" proposition: Insurers pay for either therapeutic services or hospice care, but not both, said Dr. Cobb, former president of the Community Oncology Alliance.

He added that the so-called Stark law – actually a set of provisions in federal law governing the ability of clinicians to refer patients to clinical or diagnostic facilities in which the clinician has a financial interest – is another barrier to palliative care in the community, particularly in rural areas where the population may not be large enough to support separate palliative care facilities or programs.

Dr. Amy P. Abernethy, medical director of oncology quality, outcomes and patient-centered care in the Duke University Health System, Durham, N.C., and a coauthor of the ASCO provisional clinical opinion, agrees that there are multiple impediments to reimbursement of palliative care.

"The Stark law is one impediment; a second is that the reimbursement mechanisms that are clear in hospice aren't necessarily as clear in community-based care, and then there are workforce issues. Right now, we have only a finite number of palliative care practitioners, and we only have a finite number of blocks in our graduate training programs, and we're not going to be able, using those slots, to train enough palliative care docs to fill the need that's highlighted in this provisional clinical opinion," she said.

Insurers, Younger Clinicians May Be Open to Change

Insurers seem to be coming around to the idea that palliative care can mean better patient care, however, said Dr. Smith.

He pointed to Aetna, which has a "Compassionate Care" program in which specially trained triage nurses coordinate care, identify resources, and help manage palliative care and hospice benefits for patients with terminal illnesses and their families.

Clinicians who are in training or are new to practice are also more comfortable with the idea of advance directives, palliative care, and hospice than are their more seasoned colleagues who were trained to never give up, Dr. Smith added.

Dr. Abernethy agreed: "What we're seeing is that young physicians totally get this. Probably because they haven't grown up in a world where the only thing you focus on is survival, they've understood the language of focusing on quality of life from the time they were first exposed to what medicine is," she said.

Randomized Trials Show Benefits, No Harm

In their provisional opinion, the researchers reviewed the study by Dr. Temel and her colleagues, as well as six other randomized controlled trials looking at palliative care in patients with various terminal illnesses; two of the seven total studies evaluated palliative care in cancer patients exclusively, whereas others included diagnoses such as heart failure and advanced COPD.

'Palliative care options are not widely available, and they certainly aren't available in smaller communities.'

DR. COBB

They found that "overall, the addition of palliative care interventions to standard oncology care delivered via different models to patients with cancer provided evidence of benefit. No harm to any patient was observed in any trial, even with discussions of end-of-life planning, such as hospice and advance directives."

There were statistically significant improvements in symptoms with palliative care in two of five clinical trials that measured such changes, and improvements in quality-of-life measures in two of five trials. Additionally, in two of three trials palliative care was associated with improved satisfaction of patients and caregivers, the consensus panel found.

The studies also showed, to varying degrees, improvements in patient mood and a reduction in costs. One study (J. Am. Geriatr. Soc. 2007;55:993-1000) showed $20,222 for usual care and $12,670 for palliative care ($P = .03$), and a second study (J. Palliat. Med. 2008;11:180-90) showed a total mean of $21,252 for usual care to $14,486 for interdisciplinary palliative care (P less than .001). The latter study also found savings of nearly $5,000 per patient in staffing costs with palliative care.

"Therefore, most trials showed benefits ranging from equal to improved overall survival, reduced depression, improved caregiver and/or patient quality of life, and overall lower resource use and cost because end-of-life hospitalizations were avoided," the opinion authors wrote.

All physicians interviewed for this article reported that they did not have financial conflicts of interest. ■

COMMENTARY

Dr. Lary Robinson, FCCP, comments: Based on multiple, recently published randomized trials, the American Society of Clinical Oncology issued these strong recommendations for oncologists to integrate palliative care early into their treatment plans with patients with metastatic lung cancer. In addition to significant increases in overall survival, early palliative care plus chemotherapy resulted in better patient mood and improved quality of life for the patient and their families, compared with standard therapy alone. Offering early supportive care and hospice in a comprehensive cancer care program appears ideal and appears to reduce overall costs of cancer therapy by decreasing expensive end-of-life hospitalizations. Limitations of this approach may be found in some community-based practices, especially in smaller population centers and rural areas where palliative services are not as readily available and payment for these services may also be difficult to obtain.

Cardiac Surgical Transfusions Tied to Infection Risk

BY KERRI WACHTER
Elsevier Global Medical News

FT. LAUDERDALE, FLA. – Transfusion of packed red blood cells during cardiac surgery is independently associated with increased risk of major infection, researchers reported, and – in a related study – pneumonia was found to be the most common infection associated with cardiac surgery.

Cardiac procedures with transfusions were associated with a significant risk of infection, such that "with every unit of blood, you had a significant increase in the risk of infection for the patient. It appears that there might be some sort of threshold in the 2- to 4-unit range, where-

VITALS

Major Finding: There was a significant dose-dependent association between quantity of packed red blood cells (PRBCs) and risk of infection, with the crude risk increasing by an average of 29% with each PRBC unit. Pneumonia was the most common infection at 2.4%.

Data Source: A total of 5,184 adult cardiac patients were prospectively enrolled in a 10-center infection registry between February and September 2010. Captured data included infection occurrence, type, and organism. Adjudication was performed by an independent panel of infectious diseases experts.

Disclosures: Both Dr. Horvath and Dr. Ailawadi reported that they have no relevant financial disclosures.

after the risk really seems to increase. But statistically, even that first drop of blood carried an additional infectious risk," Dr. Keith A. Horvath said at the annual meeting of the Society of Thoracic Surgeons.

In a related study, researchers found pneumonia to be the most common infection associated with cardiac surgery. "Pneumonia, surprisingly, was the most common infection, at 2.4%. This was much more common than other infections that we certainly worry about and get a fair amount of press and literature on, specifically sternal wound infections," said Dr. Gorav Ailawadi of the University of Virginia in Charlottesville.

Data for 5,184 adult cardiac patients were used for both studies. The patients were prospectively enrolled in a 10-center infection registry between February and September 2010. Captured data included infection occurrence, type, and organism. Adjudication was performed by an independent panel of infectious diseases experts.

Major infections evaluated in the study included deep incisional surgical (chest), deep incisional surgical (second incisions), empyema, endocarditis, mediastinitis, myocarditis, pneumonia, bloodstream infections, *Clostridium difficile* colitis, and cardiac device infections. Infections were defined by a combination of clinical, laboratory, and/or radiologic evidence (according to Centers for Disease Control and Prevention surveillance definitions) for a follow-up of 65 days.

The researchers included several types of surgical interventions: isolated coronary artery bypass graft (CABG), isolated valve surgery, CABG with valve surgery, surgery for heart failure, thoracic aortic surgery, and other procedures.

The mean patient age was 64 years, mean bypass time was 115 minutes, two-thirds (67%) were men, 71% had heart failure, a quarter (27%) had diabetes, 14% had COPD, and 19% had prior cardiac surgery. Mean hemoglobin was 13.2 mg/dL.

There was a significant dose-dependent association between quantity of packed red blood cells (PRBCs) and risk of infection, with the crude risk increasing by an average of 29% with each PRBC unit.

Several factors increased the risk of infection, including severe COPD (relative risk, 1.85), preoperative creatinine levels greater than 1.5 mg/dL (RR, 1.72), heart failure (RR, 1.49), mild to moderate COPD (RR, 1.36), PRBCs per unit (RR, 1.24), and surgery time per 60 minutes (RR, 1.19).

Platelet transfusion occurred in 31% of patients. However, the use of platelets was associated with a decreased risk of infection (RR, 0.71). Cell Saver use was not related to infection.

Creatinine levels greater than 1.5 mg/dL (RR, 2.40) and PRBCs per unit (RR, 1.23) significantly increased the risk of death. Many factors significantly increased the length of stay, including creatinine levels greater than 1.5 mg/dL (RR, 1.26), severe COPD (RR, 1.41), mild to moderate COPD (RR, 1.14), heart failure (RR, 1.36), PRBCs (RR, 1.12), surgery time per 60 minutes (RR, 1.11), age of 65-79 years (RR, 1.21), and age older than 80 years (RR, 1.44). The use of platelets was associated with a decreased length of stay (RR, 0.71).

All risks of transfusion must be weighed against toleration anemia, which is also associated with adverse outcomes, according to Dr. Horvath, who is the director of the Cardiothoracic Surgery Research Program for the National Heart, Lung, and Blood Institute and a member of the Cardiothoracic Surgery Trials Network.

Efforts to reduce PRBC transfusions may significantly reduce major postoperative infections. Cell salvage and ultrafiltration could be viable alternatives, he noted.

In the second study, the researchers used the same dataset. Infections were adjudicated by an independent panel of infectious disease experts. The risk of pneumonia, mortality, and length of stay were analyzed. Major infections included bloodstream, pneumonia, *C. difficile*, deep sternal incisional, mediastinitis, deep groin/leg incisional, endocarditis, and empyema.

Pneumonia was diagnosed using the 2010 surveillance criteria from the CDC/National Healthcare Safety Network, including chest x-ray with new or progressive and persistent infiltrate; fever greater than 38° C; leukopenia; leukocytosis; or altered mental status. At least two of the following must have been present as well: purulent sputum or change; cough, dyspnea, or tachypnea; rales or bronchial breath sounds; or worsening gas exchange. Duration of follow-up was 65 days.

In all, 31% had isolated CABG, 30% had isolated valve surgery, 11% had CABG and valve surgery, 6% had thoracic aortic surgery, 2% had left ventricular assist device (LVAD) implantation/heart transplant, and 20% were categorized as other.

Overall, 2.4% of patients in the registry had pneumonia, 1.1% had bloodstream infection, 1% had *C. difficile* colitis, and 0.5% had deep sternal infections.

The overall mean time to infection was 19 days, and the median was 14 days. The mean time to infection for pneumonia was 15 days. Overall, more than 40% of infections occurred after the index hospitalization. However, 68% and 66% of pneumonias and bloodstream infections, respectively, occurred during hospitalization. The three most common organisms were *Pseudomonas aeruginosa* (12%), *Enterobacter cloacae* (8%), and *Klebsiella pneumoniae* (7%).

Increased risk of pneumonia was associated with surgery time (RR, 1.42), a creatinine level of at least 1.5 mg/dL (RR, 1.94), mild to moderate COPD (RR, 1.78), severe COPD (RR, 4.12), and heart failure (RR, 1.76). The reference category was those without COPD.

In terms of process-of-care factors, only nasal decontamination with mupirocin was associated with reduced risk of pneumonia (RR, 0.77). Nasal decontamination with other agents (RR, 1.44); antibiotics given within 24 hours after surgery (RR, 1.26) and within 48 hours postop (RR, 2.70); ventilator use of 24-48 hours (RR, 2.31) and more than 48 hours (RR, 4.58); nasogastric tube (RR, 2.07); and use of PRBCs (RR, 1.10) were all associated with increased risk of pneumonia.

In terms of mortality, "pneumonia, among all the factors analyzed, had the greatest association with mortality, with an odds ratio greater than seven … which was far and away greater than anything else that was examined," said Dr. Ailawadi.

Pneumonia was significantly associated with an increased risk of mortality (RR, 7.07), as were heart failure (RR, 1.87), creatinine levels of at least 1.5 mg/dL (RR, 2.97), and surgery duration (1.27). However, black race appeared to be protective, with a significantly decreased risk of pneumonia (RR, 0.43).

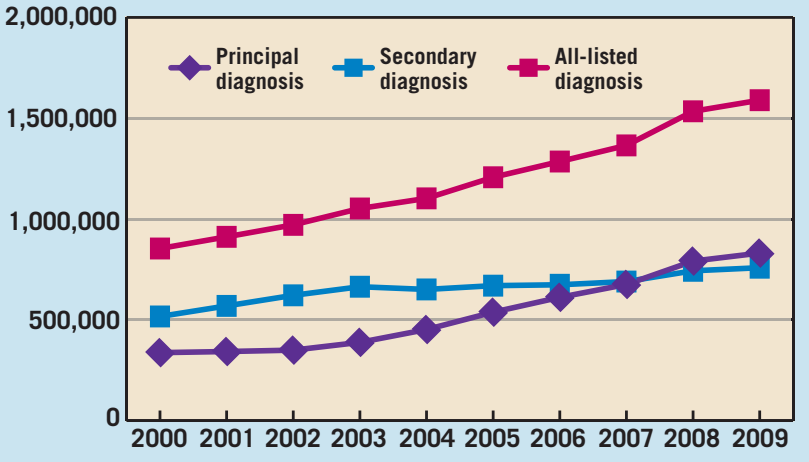
Pneumonia significantly increased the length of stay by a median of 13 days (19 days with pneumonia and 6 days without). A number of factors – COPD, heart failure, creatinine levels of at least 1.5 mg/dL, surgery time, age of 65-79 years, age 80 years and older, and black or Hispanic race – were significantly associated with longer length of stay. Men had a significantly decreased length of stay (RR, 0.79). ■

COMMENTARY

Dr. Jun Chiong, FCCP, comments: Blood transfusion carries a risk of infection. The authors have nicely presented their work correlating this risk in patients undergoing cardiac surgery. However, patients who received transfusion are often sicker, which may explain their susceptibility to infection, whether blood borne, nosocomial, or community-acquired. It is also very important to our surgical colleagues to minimize transfusion if possible. Blood banks play a significant role in the screening of donors and the collection and storage of blood and blood products, and these data need to be stratified by sites, as this finding may not be universal.

DATA WATCH

Stays With Septicemia Rose 86% from 2000 to 2009



Note: Based on data from the Healthcare Cost andUtilization Project.
Source: Agency for Healthcare Research and Quality

IMNG Medical Media

PRESIDENT'S CORNER

The Future of Private Practice

BY DR. ANITRA GRAVES, FCCP; DR. MARC BENTON, FCCP; AND DR. MICHAEL NELSON, FCCP

"Whenever you find that you are on the side of the majority, it is time to reform." **–Mark Twain**

As you read this article, the clerks of the US Supreme Court, who are, of course, intimately aware of the problems facing you and your patients, fumble through case-law that could sculpt your future. But the really good news is that you have no way to advocate on your own behalf. Perhaps you would be more comfortable knowing that the US Congress is looking out for you, as well. At least you can speak to them…sometimes …via e-mail…through an office staffer, who thinks thoracentesis is a movie about a Norse god. The major problem with health-care reform for those of us in private practice is the uncertainty. What can we do to maximize the possibility that the coming transformations of medicine and the resultant metamorphosis of private practice will allow us to provide high-quality care in a financially viable environment? Let's look at a few issues more closely, beginning with the manpower shortage.

Anyone who has tried to hire another partner to join their group knows of the many difficulties one faces. It is, and will be for the foreseeable future, a "seller's market." Fellows just out of training and early-career physicians wishing to establish themselves with a practice often have expectations about time commitment and salary that can be out of sync with the reality of one's everyday practice. This makes it difficult to compete with other health systems that offer attractive employed-positions…for 2 years, or until the deal changes, and is no longer so attractive. In most cases, the hospital's focus is primarily centered on fulfilling its needs, not those of their physicians. Additionally, these systems stage an air of stability that appears very favorable to the "millennials" and "generation Xers," disproportionately affected by the recent recession. The entrepreneurial appetite for risk has been supplanted by staggering student loans, limited up-side to income, and a questionable quality of life.

Compounding the well-documented shortage of pulmonary and critical care specialists, a new physician-hire costs the typical private practice extended recruitments and signing bonuses only to culminate in promiscuous hires who are quick to wander to what they perceive as greener pastures.

Let's move on to the topic of the ever-dwindling compensation for your services. Don't worry; you can be very certain that you will be paid less tomorrow for things that you do very well today. These cuts could be the result of devaluation of fees, limited access to contractual agreements with commercial payers, and penalties as a result of an escalation in audits and noncompliance with government mandates. You are also likely to endure more profit pressures from investments required to comply with Meaningful Use, mandatory administrative changes for billing and coding, and challenges to utilization. For many of us, the only way to compensate is by increasing our work volume. This runaway health-care train will eventually jump the track, and you should position yourself to sustain as little injury as possible. You should start with a complete economic and operational evaluation of your practice to create efficiencies that would not adversely affect your patient care but would protect your salary in the event of the inevitable declining reimbursements. The best defense to remain independent is by establishing a practice that is patient-oriented, technologically progressive, and quality driven. This advantageously positions you for the next ray of hope for independent private practice as we know it—clinical integration.

Clinical integration has many forms—hospital contracting, preferred-provider status (approved members) in clinically integrated health-care networks, and accountable care organizations (ACOs). The solution for your practice will depend on regional opportunities and regulations that frame the relationships you wish you cultivate. The Healthcare Reform Law, though vague at the moment, is one vehicle that may maneuver private practice away from extinction. The value-based purchasing and ACO shared-savings provisions mandate quality threshold measures and governance requirements that require committed physician buy-in, physician leadership, and, therefore, productive physician-hospital relationships that would certainly go beyond the scope of simple employment. Despite enumerable changes to the practice of medicine over the next 5 years, certainly you can adapt to changes wrought by your "friends" in the federal government. Those nimble minds that have made you excellent physicians and successful in business need only be flexible and not cede the battle before the lines are drawn. ■

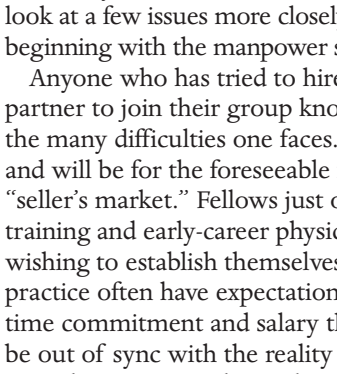
The views expressed in this article are those of the authors and do not represent the views of the ACCP, its leadership, members, or staff.

Health-care Reform: Is Anyone Listening?

In my article on health-care reform, published in the March issue of *CHEST Physician*, (www.chestnet.org/downloads/ChangingHealthcareLandscape.pdf), I stated that perhaps the greatest impact of this "reform" is being felt by our colleagues in independent private practice. The greater scrutiny, emphasis on outcomes-based performance improvement metrics, the burdensome reporting of performance and outcomes data, which may directly impact physician reimbursements, the dwindling returns for services provided, coupled with rising costs to practice medicine, may disproportionately affect the private practitioner.

In this issue, Dr. Mike Nelson (Immediate Past Chair of the Practice Management Committee [PMC]), Dr. Anitra Graves (Chair of the EHR Subcommittee of the PMC), and Dr. Marc Benton (member of the PMC) discuss their feelings as private practitioners. They give a balanced perspective on the private practice job market and how it is likely to affect the millennials and generation Xers. And, very importantly, they provide practical advice to the private practitioners on how to prepare and adapt individual medical practices to brace for the change and to sustain independence in uncertain and difficult times.

–Dr. Suhail Raoof, FCCP



Power to Connect

Take advantage of the **all new ACCP e-Community**, a private, secure, online platform ACCP members can use to connect with ACCP members around the world.

The simple, user-friendly format allows members to:

- **Discuss** clinical issues, *CHEST* articles, and research interests.
- **Collaborate** with members on presentations, case studies, and other education material.
- **Share** resources, such as slide sets or links to journal articles.
- **Search** for members by institution, specialty, or clinical interests.
- **More!**

The ACCP e-Community is open to all ACCP members who belong to one or more of the ACCP NetWorks. By joining, members can stay connected to all NetWork activity and easily contact other ACCP members within the e-Community.

Join the e-Community Today

ACCP members who belong to any of the NetWorks can join now.
ecommunity.chestnet.org

For questions or help logging in, contact communityadmin@chestnet.org.

ACCP members who are not members of a NetWork can gain access to the ACCP e-Community by joining 1 of the 23 ACCP NetWorks.

Learn more at chestnet.org/accp/networks.

In Memoriam

Dr. Philip Marcus, FCCP, died suddenly on April 9 during a family vacation. As many of you know, Phil was a passionate supporter of the College, and his leadership contributions are many, including service on the ACCP Board of Regents, serving as Chair and Vice-Chair of the Council of NetWorks, Practice Operations NetWork, and Practice Management Committee, and member of the Editorial Advisory Board, *CHEST Physician*. He was a good friend to all at the College, and he will be sorely missed. The ACCP extends heartfelt condolences to the Marcus family. ■

Global Education and Development

BY DR. MARK J. ROSEN, FCCP
Director, Global Education and Strategic Development

In a previous issue *of CHEST Physician*, I reviewed the College's efforts to increase our participation and impact on the clinical education of our thousands of members around the world, along with others who care for patients with pulmonary disease, critical illness, and sleep disorders. The Global Education and Development Committee (GEDC), representing stakeholders in the College, along with representatives from Greece, Romania, and Israel, is developing new strategies to expand our educational reach with new and innovative approaches to provide the most effective education.

The CHEST 2012 in Atlanta will feature a series of sessions with international speakers on topics of global interest. An ad hoc committee of ACCP members from Saudi Arabia, Israel, Argentina, and China has coordinated a series of sessions on environmental issues, infectious diseases, public health, and disaster management. In addition, Global Case Report sessions invite international members and others to present their interesting cases to a wide audience.

The ACCP is arguably the world leader in simulation education, a method shown in our own evidence-based CME guidelines to be far more effective in improving physicians' knowledge than the standard didactic approach of the professor in the dark room with the PowerPoint presentations. This is also far more effective in teaching procedural skills and improving clinicians' confidence in performing them. Our program in airway management simulation was conducted in Saudi Arabia, and a group of Saudi physicians are now recognized as ACCP trainers, capable of conducting these programs for others using our methods and curriculum. ACCP leaders conducted a series of hands-on simulation programs on mechanical ventilation in India, and an ACCP program in bronchoscopy simulation was recently carried out in Israel during a joint Israel Society of Pulmonology – ACCP joint conference. We also have plans to partner with international medical centers and national and regional educational programs.

The ACCP is committed to work with the GEDC and the Council of International Regents and Governors to fulfill the College's mission of being the *global* leader in providing education in cardiopulmonary, critical care, and sleep medicine, and we are delighted and grateful for our members' enthusiasm and participation. ■

New Approach to VAP Surveillance Proposed

The CDC's Division of Quality Promotion (DHQP) is collaborating with the CDC Prevention Epicenters (http://www.cdc.gov/hai/epicenters), the Critical Care Societies Collaborative (CCSC, http://ccsconline.org), other professional societies and subject matter experts, and federal partners. DHQP initiated a collaboration with the CCSC in September 2011 and convened a VAP Surveillance Definition Working Group, consisting of representatives from several organizations with expertise in critical care, infectious diseases, health-care epidemiology and surveillance, and infection control. The Working Group recognized that there is currently no gold standard, valid, reliable definition for VAP. Even the most widely used VAP definitions are neither sensitive nor specific for VAP. Therefore, the Working Group decided to pursue a different approach-development of a surveillance definition algorithm for detection of ventilator-associated events (VAEs). This algorithm will detect a broad range of conditions or complications occurring in mechanically ventilated adult patients.

The Working Group has proposed a new surveillance definition algorithm to detect VAEs in adult patients. It is not designed for use in the clinical care of patients. The Working Group anticipates that the new definition algorithm will continue to be refined, based on the results of field experience and additional research. The definition algorithm refinement process is, and will continue to be, iterative and will require the ongoing engagement of the critical care, infection prevention, infectious diseases, and health-care epidemiology communities. For further information, go to http://www.thoracic.org/about/atsstat/resources/ATS_VAE_COMPLIANT_FINAL_20120301.pdf. ■

SLEEP STRATEGIES

Anesthesia and Sleep: More Than Just Apnea—An Update From the Society of Anesthesia and Sleep Medicine

Nearly 1 year ago, an article was published in the Sleep Strategies section of *CHEST Physician* announcing the formation of a new medical organization, the Society of Anesthesia and Sleep Medicine (SASM). SASM was developed, in part, to study, educate, and discuss issues relevant to perioperative care and obstructive sleep apnea (OSA) (Auckley et al. *CHEST Physician*. 2011;6[7]:21). Since that time, SASM has held its first conference, established a website (www.sasmhq.org), published three newsletters, and developed a committee structure to address many aspects of this interdisciplinary area of medicine.

The inaugural meeting, "OSA, Anesthesia and Sleep: The Common Ground" was held in Chicago on October 14, 2011. With nearly 250 registrants, a full day of lectures, and the presentation of 35 abstracts, the meeting was very well received. The majority of the attendees were anesthesiologists because the meeting preceded the annual American Society of Anesthesiologists meeting. Sleep medicine practitioners and providers representing a handful of other specialties also attended the meeting. The keynote address, delivered by Dr. David Hillman of Sir Charles Gairdner Hospital in Perth, Western Australia, was titled, "The Effects of Sleep and Anesthesia-Induced Unconsciousness on Upper Airway Patency" and set the tone for an informative day of discussion regarding the interrelated disciplines of anesthesia, sleep, and perioperative care. The conference included nine other lectures presented in three sequential sessions with poster viewing and discussion in-between the lectures. Four awards were given to the best abstracts in the categories of basic science and clinical research. The top prize in basic science was awarded to Dr. Norman Taylor of Massachusetts General Hospital in Boston for his abstract titled, "The D1 Dopamine Receptor Agonist Chloro-APB Induces Emergence From Isoflurane Anesthesia." The first prize for clinical research went to Dr. Peter Liao from the University of Toronto who presented "A Randomized Controlled Trial of Perioperative Auto-CPAP Treatment in OSA Patients: A Preliminary Report." Extensive notes from a number of the speakers, as well as a full list of abstract winners, are available on the SASM website (http://anesthesiaandsleep.org/) under the 2011 Program Notes and 2011 Poster Winners tabs.

The SASM website is also rich with information, literature, and discussion regarding this emerging collaborative field. Links are provided to quarterly newsletters, a discussion forum available for members to converse about the varied aspects of anesthesia and sleep medicine, and regular literature updates highlighting important articles relevant to the field. Two recently featured manuscripts describe the increased risk of postoperative pulmonary complications and postoperative delirium in patients with OSA. The first of these (Memtsoudis et al. *Anesth Analg*. 2011;112[1]:113) used a large surgical database of 6.5 million cases to identify an association between the diagnosis of OSA and higher rates of postoperative aspiration pneumonia, ARDS, the need for mechanical ventilation, and, in patients undergoing orthopedic surgery, pulmonary embolism. The second study (Flink et al. *Anesthesiology*. 2012;116[4]:788) was a small prospective study of patients 65 years and older, free of dementia or psychiatric disease at baseline, who were undergoing elective knee replacement. This study found that, after multivariate analysis, the preexisting diagnosis of OSA was the only significant predictor of the development of postoperative delirium. Both of these studies emphasize the need for further research to determine optimal strategies for managing OSA perioperatively and how such management may impact clinical outcomes.

The organizational structure of the SASM and its leadership can be found in detail on the SASM website. Among the active committees is the Clinical and Research Committee that is dedicated to directing future research endeavors related to the interactions between anesthesia and sleep medicine. Initial efforts are underway to establish a multicenter database of patients with OSA undergoing surgery in order to provide a resource for clinical research studies and hypothesis generation. It is this type of collaborative research that will help move the field ahead. The Teaching and Training Subcommittee has been charged with developing strategies and tools for disseminating information and enhancing education regarding the perioperative care of patients with OSA.

While SASM formed around the issues of evaluation and management of surgical patients with known or suspected OSA, there are other shared features of anesthesia and sleep medicine that bring them together. Understanding the basic mechanisms underlying unconsciousness in anesthesia and sleep will lead to new insights into the nature of both conditions. As an example, it is not yet understood why sleepiness appears to increase susceptibility to anesthesia or why this susceptibility appears to have a circadian variation. In addition, while anesthesia in the absence of significant postoperative pain seems to have some of the restorative powers of natural sleep, sleep loss due to pain and a number of other factors is common postoperatively and may adversely impact recovery from surgery (Rosenberg-Adamsen et al. *Br J Anaesth*. 1996;76(4):552). Similarly, sleep loss may adversely affect outcomes in critical care units and other hospital environments where sleep may be severely disrupted over prolonged periods (Friese. *Crit Care Med*. 2008;36[3]:697). Examination of the effects of sleep disturbance and sedation on clinical outcomes is likely to have implications beyond the perioperative arena and is a fertile area for future study. This should be of specific interest to members of the ACCP who work in critical care units.

Because of expanding interest in these topics, the 2012 SASM conference, scheduled to take place in Washington, DC, on October 11-12, has grown to 1-1/2 days. The 2012 meeting, titled "Anesthesia and Sleep Medicine: What Every Health Professional Needs to Know" will offer content relevant to many providers, including anesthesiologists, critical care physicians, residents, fellows, general medicine physicians, pulmonologists, sleep medicine providers, surgeons, and allied health professionals, as well as basic scientists. The objectives of the meeting are as follows:

- To review what a health professional should know about sleep apnea and the impact of anesthetics/sedatives/narcotics and body position perioperatively
- To recognize the perioperative complications of patients with OSA
- To appraise practice pathways to screen, diagnose, and manage sleep-disordered breathing in the perioperative period

The keynote address, to be delivered by Dr. Kingman Strohl of Case Western Reserve University in Cleveland, Ohio, is titled, "Genetic Architecture of Ventilatory Traits." The meeting will have six sequential sessions and cover a wide range of issues related to sleep and sleep apnea in the perioperative setting, including topics such as home sleep testing and pediatric sleep apnea, as well as a discussion on common mechanisms of sleep and anesthesia. Abstracts for the meeting can be submitted via the SASM website between May 1 and July 1. Any work related to the following areas will be considered for acceptance: the mechanism of anesthesia, sedation, arousal, memory, intraoperative awareness and postoperative recall, airway physiology, respiratory drive, and sleep disorders. There will be three research awards for abstracts in each of the areas of basic research and clinical research. The winners will present their work orally at the meeting and receive monetary awards.

All health-care providers interested in learning more about the clinical problems shared by anesthesiology and sleep medicine are encouraged to join the SASM and attend what will undoubtedly be an exciting conference this fall. ■

Dr. Dennis Auckley, FCCP
Associate Professor
Division of Pulmonary, Critical Care, and Sleep Medicine
MetroHealth Medical Center
Case Western Reserve University
Cleveland, OH

Dr. Norman Bolden
Assistant Professor
Department of Anesthesiology
MetroHealth Medical Center
Case Western Reserve University
Cleveland, OH

Dr. Frances Chung
Professor
Department of Anesthesiology
Toronto Western Hospital
University of Toronto
Toronto, ON, Canada

Dr. David Hillman
Professor
Department of Pulmonary Physiology and Sleep Medicine
Sir Charles Gairdner Hospital
Perth, Western Australia

Mark Your Calendars: OneBreath® at CHEST 2012

Mark your calendars for the OneBreath **An Evening at the Georgia Aquarium** event on Sunday, October 21, 2012, 7:00 to 10:00 PM, during the CHEST 2012 meeting. The Georgia Aquarium provides an opportunity to experience the wonder of marine life at the world's largest aquarium while ensuring that The Foundation's important lung health education for children and families can be expanded to more communities. Tickets will be available through the CHEST 2012 registration site. Watch *ACCP NewsBrief*, social media, and *CHEST Physician* for more information regarding this event. ■

NETWORKS

Ivacaftor and CF, REVEAL Registry, Thoracic Oncology

Pediatric Chest Medicine

Future of Medicine Is Here

There is great excitement in the cystic fibrosis (CF) circles these days due to the introduction of ivacaftor (Kalydeco), a CF gene potentiator.

Over the last 40 years, there has been great improvements in the management of CF, mainly through the introduction of specific antibiotics against pseudomonas, oral, IV, and by inhalation; the wide use of effective airway clearance techniques; and the use of pancreatic enzymes, thus improving the nutritional status of patients affected by this awful disease. All these treatments were directed to better manage the complications of this illness.

In 1989, when the sequencing and cloning of the CF transmembrane regulator (*CFTR*) gene became available, there was great expectation that, since the causative gene was known, correction of it and the "CURE" were just around the corner.

Despite early progress in the gene therapy field, many significant obstacles continue to interfere with the development of this approach.

The other plan of attack to treat the cause of the illness is to reverse the consequences of *CFTR* mutations on this protein function on the surface of the epithelial cells.

More than 1,700 different *CFTR* mutations have been identified. They have been grouped into six different classes based on their effects on *CFTR*

structure and/or function. Class-specific therapies are being developed and are at different stages of clinical trials.

Ivacaftor (VX-770) is the first such drug that actually showed significant efficacy in improving the function of the chloride channel at the surface of the epithelial cell. It improves the Cl-ion flux (potentiator) into the lumen of the airways/exocrine canals, hydrating sputum and exocrine gland secretions, thus reversing the basic cause of what was once called "mucovisidosis."

The main effect has been shown in improving the function of G551D mutation. This particular mutation is present in only 4% of the CF population in the United States. However, since this treatment is class-specific, it is expected to improve class III mutations known as "gating mutations" (Ramsey et al. *N Engl J Med*. 2011;365[18]: 1663).

Ivacaftor is an oral medication available as 150 mg tab taken twice daily with fatty meals. The effect on pulmonary function was noted in 2 weeks by 10.6% improvement of FEV_1. There was marked reduction of the pulmonary exacerbations and weight gain. The concentration of sweat chloride value dropped almost in half.

This is a great advance in medicine. Treatment is individualized and attacks the specific genetic cause of illness. The future of medicine is here.

Dr. Louay K. Nassri, FCCP
Steering Committee Member

Pulmonary Vascular Disease

During the past 25 years, the field of pulmonary arterial hypertension (PAH) has dramatically evolved. We now have nine FDA-approved therapies for PAH with several more being evaluated. The number of physicians with specialized interest in this field has also expanded significantly. The enhanced options and interest in PAH have created unique challenges. How do we begin to hone down on the best approaches to diagnosis and treatment in this complex environment? Can we prospectively study all possible combinations of therapies available? What are the predictors of outcome in the "modern era" of PAH?

Although many of these questions remain unanswered, we now have a powerful tool to start the unraveling process. The Registry to Evaluate Early and Long-term PAH Disease Management (REVEAL) was established as a multicenter retrospective and prospective registry, designed to comprehensively evaluate salient features of patients with established PAH. In a rare disease such as PAH, registries of this type are ideally suited to answering many questions that simply couldn't be addressed otherwise.

REVEAL, in its short existence, has led to remarkable output of information. More than 3,000 patients have been enrolled in REVEAL (compared with 184 in the entire NIH registry of the early 1980s!). Ten peer-reviewed papers have either been published or are in press. Over 90 abstracts have been presented. New insights into characteristics of patients with PAH (Badesch et al. *Chest*. 2010;137[2]:376); continued delays in PAH diagnosis (Brown et al. *Chest*. 2011;140[1]:19); composite predictors of survival (Benza et al. *Circulation*. 2010; 122[2]:164); and connective tissue disease-associated PAH (Chung et al. *Chest*. 2010;138[6]:) are just a few examples of what REVEAL has yielded.

Dr. Richard Channick, FCCP
Steering Committee Member

Thoracic Oncology

Update of Activities

The Thoracic Oncology NetWork is grateful for the opportunity to share some of our ongoing activities. In particular, we will describe the cancer-related content of the upcoming CHEST 2012 meeting, highlight our NetWork's e-Community, and provide an update on our current projects.

CHEST 2012 will provide a spectrum of educational forums and topics related to thoracic oncology. The general sessions and highlights will address areas relevant to the practicing clinician, trainee, and thoracic oncology specialist. These include sessions about lung cancer screening, lung nodule evaluation, staging, risk prediction, quality measures, the heterogeneity of lung cancer, and appropriate tissue acquisition. In addition, there is a lung cancer track the final morning of the meeting where a half day will be spent focused on these areas. Our NetWork Forum is a great opportunity to meet others with shared interests and find ways to be engaged in the NetWork's activities.

The College has provided us with a venue to improve communication within and between the NetWorks and their membership. The e-Community platform is off to a roaring start. The Thoracic Oncology NetWork's area provides relevant resources for those interested and a forum for discussions about new or controversial topics. We encourage you to visit and contribute to this site.

The Thoracic Oncology NetWork and our membership are involved in projects of various scopes and at different stages of development. A Consensus Statement for the Evaluation and Treatment of High Risk Stage I NSCLC has been developed in collaboration with the Society of Thoracic Surgeons. This is currently under review for publication. The Lung Cancer III Guidelines, a mammoth project, has been steadily moving along. Draft chapters will be ready for review soon. Finally, a project aiming to develop Quality Indicators for the Evaluation and Staging of Lung Cancer has recently received approval and is well underway.

Overall, it is an exciting time, with many developments in thoracic oncology leading to opportunities for education and research. The Thoracic Oncology NetWork welcomes your ideas and participation in these efforts.

Dr. Peter Mazzone, FCCP
NetWork Vice-Chair

CHEST 2011 CENTERS OF EXCELLENCE SERIES

The UMass Memorial Medical Center Experience

BY ANN E. CONNOLLY, ACNP-BC; AND DR. RICHARD S. IRWIN, MASTER FCCP

The Centers of Excellence (COE) is a new and innovative concept that was introduced at CHEST 2011. Aimed at providing a platform to share best practices, COE 2011 offered an unhurried, relaxed setting to interact with others and demonstrate successful models and programs. Our critical care team did not hesitate when offered the opportunity to participate and showcase the mechanics and operation of our critical care model. Our method, an institution-wide, interdisciplinary, collaborative, patient-focused team approach of delivering critical care, was spawned at our university medical center from a 1 1/2-year strategic planning process that involved 27 stakeholders. This process resulted in a stronger, more patient- and family-centered approach that now succeeds on all levels. Our model allowed for the successful development and implementation of our nurse practitioner/physician assistant program, our standardized clinical practice guidelines that have markedly decreased variability of care, and the implementation of an ICU tele-medicine program. In our exhibit, we were able to demonstrate the key features of our transformed approach to delivering critical care by sharing our many "lessons learned" along the way so that others might benefit and learn from our experiences. The opportunity to be a first-time exhibitor proved to be a rewarding experience that allowed our team to share the story of our model redesign from the top down and bottom up. It's noteworthy that the experience was not a one way street. As we shared our story with others, we too learned and returned home with new ideas and concepts for continued success. ■

Understanding and Addressing Asthma Disparities

BY DR. LEROY M. GRAHAM, FCCP
ACCP Diversity Committee Member

Health disparities are defined as differences in the incidence, prevalence, mortality, and burden of disease and other adverse health conditions that exist among specific population groups.

Epidemiology of Asthma Disparities

Asthma in the United States continues to be characterized by alarmingly persistent, if not increasing, health-care disparities. Recently, the Centers for Disease Control and Prevention (CDC) reviewed asthma prevalence, disease characteristics, and self-management education in the United States over the period of 2001 to 2009.[1] The overall prevalence of asthma increased 12.3% from 7.3% (20.3 million persons) in 2001 to 8.2% (24.6 million persons) in 2009. This increase in prevalence was most notable among the young, minorities, women, and the poor. Prevalence among children (<18 years of age) was 9.6%, and was highest among poor children (13.5%) and among non-Hispanic black children (17.0%). Among adults, prevalence was greatest in women (9.7%) and adults who were poor (10.6%). More uninsured persons with asthma than similarly diagnosed insured persons reported being unable to buy prescription medications (40.3% vs 11.5%). Uninsured persons with asthma were less likely to have seen or talked to a primary care physician (58.8% vs 85.6%) or specialist (19.5% vs 36.9%) than insured persons with asthma.[1] This pattern at once seems counterintuitive to evidence-based guidelines for the diagnosis and management of asthma, perceived advances in access to care, and purportedly enhanced awareness of these disparities.

African American children have three to six times higher rates of ED visits, hospitalizations, and mortality attributable to asthma compared with white children. Higher asthma morbidity is also noted in Hispanic children, particularly of Puerto Rican descent.[2,3] Similar trends persisted in a large diverse population of military dependents where differences in access to care and socioeconomic status were less likely. A recent study utilized the National Asthma Survey to characterize racial and ethnic disparities in asthma medication use and health-care utilization among children. In this review, 1,485 children were surveyed. Of those surveyed, 55% were white, 25% were Hispanic, and 20% were black. In comparison to white children, twice as many black children had asthma-related ED visits (39% vs 18%) and hospitalizations (12% vs 5%). Though the National Asthma Education and Prevention Program clearly states that inhaled corticosteroids are the preferred treatment for mild to moderate persistent asthma in children,[4] significantly fewer black and Hispanic children reported using these agents in the prior 3 months (21% and 22%, respectively) compared with white children (33%). In addition, 26% of black children and 19% of Hispanic children reported receiving a daily dose of short-acting beta-agonists (SABAs) compared with 12% of white children. In this survey, ED visits were positively correlated with SABA use and were negatively correlated with ICS use when stratified by race/ethnicity.[5]

A study of all hospital discharges obtained from the N.Y. State Department of Health revealed that both hospitalizations and death rates for all ages among Hispanics and blacks were three to five times those among whites.[6]

While socioeconomic factors contribute to asthma disparities, a study of middle-class adult members of a health maintenance organization (HMO) found black members were more likely to use the ED and less likely to use a primary care provider for asthma-related visits than white members. Referral to an asthma specialist was also less likely among black members than among white members.[7]

Persistent asthma disparities continue to increase primarily among minority and poor populations.[8] Regrettably, the current body of clinical research is largely descriptive and, as such, offers little in terms of actionable strategies to attenuate or decrease these disparities.

Asthma requires an acceptance of the concept of maintenance health care to achieve and sustain control. Many minorities see health care as a situational need; quite simply, something to access when they are sick as disparate utilization of urgent care centers and EDs would seem to indicate. Similarly, cultural influences may affect the taking of daily maintenance therapy as required in persistent asthma. Misguided fears of tolerance and/or dependency may greatly limit adherence in this regard.

Communication between the care team (providers and educators) must become more effective. A common perception that more effective education and interaction is more time consuming is simply not the case. Effective communication should actually increase the efficiency of both the clinical encounter and any educational intervention.[4]

Attempts to "dummy down" communication about often-complex disease states do not suffice for cultural competency or accommodation for low literacy.

Awareness by health-care providers of these challenges is a critical component of effective asthma education and management to reduce disparities. ■

References

1. Vital signs: asthma prevalence, disease characteristics, and self-management education—United States, 2001 - 2009. *MMWR Weekly.* 2011;60(17):547-552.
2. Akinbani, LJ et al. The state of childhood asthma in the United States: 1990-2007. Pediatrics 2009:123 (suppl):S131-145.
3. Cohen RT, Celedn JC, Hinckson VJ, et al. Healthcare use among Puerto Rican and African American children with asthma. *Chest*. 2006;130(2):463-471.
4. Cabana MD, Slish KK, Evans D, et al. Impact of physician asthma care education on patient outcomes. *Pediatrics*. 2006; 117(6):-2157.
5. Ortega AN, et al. Impact of site of care, race and Hispanic ethnicity on medication use for childhood asthma. *Pediatrics*. 2002;109(1):E1.
6. Carr W, Zeitel L, Weiss K. Variations in asthma hospitalizations and deaths in New York City. *Am J Public Health*. 1992;82(1):59-65.
7. Blixen CM, Havstad S, Tilley BC, Zoratti E. A comparison of asthma-related healthcare use between African-Americans and Caucasians belonging to a health maintenance organization (HMO). J Asthma. 1999;36(2):195-204.
8. Hill TD, Graham LM, Divgi V. Racial disparities in pediatric asthma: a review of the literature. *Curr Allergy Asthma Rep*. 2011;11(1):85-90.

This Month in *CHEST:* Editor's Picks

BY DR. RICHARD S. IRWIN, MASTER FCCP
Editor in Chief

▶ **Macrolide Antibiotics and Survival in Patients With Acute Lung Injury.** *By Dr. A. J. Walkey; and Dr. R. S. Wiener.*

▶ **The Association Between a *Darc* Gene Polymorphism and Clinical Outcomes in African American Patients With Acute Lung Injury.** *By Dr. K. Neudoerffer Kangelaris et al.*

▶ **Acute Effects of Salmeterol and Fluticasone Propionate Alone and in Combination on Airway Blood Flow in Patients With Asthma.** *By Dr. E. S. Mendes et al.*

▶ **Steady Antibiotic Release From Biodegradable Beads in the Pleural Cavity: An In Vitro and In Vivo Study.** *By Dr. K- S Liu et al.*

POINT/COUNTERPOINT EDITORIAL

▶ **Should Coagulopathy Be Repaired Prior to Central Venous Line Insertion?**
Yes: Why Take Chances? – Dr. R. M. Baron
No – Dr. S. Z. Goldhaber, FCCP

CHEST 2012: Destination Atlanta

Ever wonder why, no matter where you go in Atlanta, you always seem to be driving on Peachtree Street? There are more than 65 streets with the word Peachtree. Did you know Peachtree streets are not named for peach trees? Many of Atlanta's corridors follow paths created by the Creek and Cherokee Indian nations who inhabited the area until the early 19th century. One Creek settlement was called Standing Pitch Tree after a tall lone tree. Over time, "pitch tree" became "peach tree," which was adopted as a common street name.

CHEST 2012
October 20 - 25
Atlanta, Georgia

As you prepare for the CHEST meeting and begin planning your trip to Atlanta, keep in mind some of the city's interesting facts and folklore. For instance, did you know...

▶ You can ride your bike from Atlanta to Alabama. The Silver Comet Trail begins in Smyrna and runs across the Alabama border.

▶ Atlanta is home to two Nobel Peace Prize winners. In 1964, Martin Luther King Jr. was the youngest man to receive the Noble Peace Prize, and President Jimmy Carter received the Nobel Peace Prize in 2002. The prizes are on display in Atlanta at the Martin Luther King National Historic Site and The Jimmy Carter Library and Museum.

▶ View Atlanta from the tallest hotel in the Western hemisphere. The rotating Sun Dial Restaurant Bar and View atop the cylindrical Westin Peachtree Plaza in downtown Atlanta provides a breathtaking 360-degree view of the city and surrounding area while enjoying the restaurant's cuisine.

▶ Atlanta Brave Hank Aaron hit his 715th home run in April 1974 over the left field wall at Atlanta-Fulton County Stadium, breaking Babe Ruth's career record. The stadium was demolished in 1997. A parking lot for Turner Field now stands on the site, with an outline of the old stadium and plaque marking the spot where Aaron's historic home run landed in what was formerly the Braves bullpen.

Plan now to attend CHEST 2012 for essential updates on patient care and practice management strategies. More than 300 general sessions, using a variety of instructional formats, will be presented. Look for hands-on simulation opportunities, case- and problem-based presentations, small-group interactive discussions, self-study opportunities, and more.

Learn more at accpmeeting.org. ■

CLASSIFIEDS

Also available at www.imngmedjobs.com

PROFESSIONAL OPPORTUNITIES

Critical Care/Pulmonary Intensivist

A successful, respected, and well-established Pulmonary and Critical Care group in Annapolis, Maryland is seeking to add a day Intensivist and a Night Intensivist to their growing practice.

ANNAPOLIS
Asthma, Pulmonary & Sleep
SPECIALISTS

Employment Opportunity includes:
- Practicing at only one medical center
- Family friendly work schedule
- New facility with a closed unit
- Competitive compensation and benefits package

For more details please contact Kem Tolliver at (410) 266-1644 or kem@annapolispulmonary.com.

Academic Pulmonologist

The University of Tennessee Health Science Center has a tenure track faculty opening, academic rank based on qualifications, in its Pulmonary, Critical Care and Sleep Medicine Division. Applicant must have an MD degree and be eligible for Tennessee licensure. BE/BC in internal medicine, pulmonary diseases, critical care medicine are minimal requirements. Sleep qualifications/eligibility are strongly desired. Teaching and service activities of the Division are performed at Methodist University Hospital, Regional Medical Center, and VA Medical Center – all adjacent educational institutions of the UTHSC College of Medicine. The qualified individual will participate in inpatient and outpatient fellowship training including Sleep Medicine and is expected to develop clinical and/or basic science investigation. Send curriculum vitae and two recommendation letters to Amado X. Freire, MD, MPH, D-ABSM, Division Chief, Pulmonary Critical Care and Sleep Medicine, 956 Court Ave. Room G-228, Memphis, TN 38163; Phone 901-448-5757, Fax 901-448-7726; email **afreire@uthsc.edu**. The University of Tennessee is an EEO/AA/Title VI/Title IX/Section 504/ADA/ADE employer and encourages applications for qualified women and minorities.

NEW JERSEY
Director Southern New Jersey Intensivist Program

Director Southern New Jersey Intensivist Program: Seeking BC PCC physician with prior director experience to develop a new intensivist program. Hospital is less than 45 minutes from Philadelphia and is a regional facility serving a population of 350,000. The hospital has a staff of more than 500 physicians and other healthcare providers (including active and courtesy staff). Low-cost housing and farmland make this a nice opportunity for those who like the ocean nearly as well as a big city. Client will not consider contract groups.

Wanda Parker
The HealthField Alliance
866-232-2333, 203-778-3333
healthfield@mindspring.com

Pulmonary/ Critical Care Physicians

OSF Medical Group seeks two Pulmonary/Critical Care physicians to join growing group of three, two hours from Chicago and St. Louis, in Bloomington, Illinois. Call 1:5. OSF Saint Joseph Medical Center, a Level II Trauma Center, houses a state-of-the-art Comprehensive Care Unit of 32 beds, which includes Critical Care and Step Down, growing ambulatory pulmonary practice, sub-specialty clinics in pulmonary hypertension and lung nodules, and six bed accredited sleep center. Come be part of the OSF Healthcare, ranked # 1 in Integrated Healthcare Networks in Illinois. Call or send CV to: Rachel Kloter, Phone: 309-683-8352 Email: **rachel.kloter@osfhealthcare.org** Web: **www.osfhealthcare.org**

CHEST Physician
CLASSIFIEDS

For Deadlines and
More Information, Contact:
Rhonda Beamer
Walchi Tauber Group, Inc.
2225 Old Emmorton Road, Suite 201
Bel Air, MD 21015
Tel: 443-512-8899 Ext. 106
Fax: 443-512-8909
Email: rhonda.beamer@wt-group.com

IMNG MEDICAL MEDIA

Disclaimer

Chest Physician assumes the statements made in classified advertisements are accurate, but cannot investigate the statements and assumes no responsibility or liability concerning their content. The Publisher reserves the right to decline, withdraw, or edit advertisements. Every effort will be made to avoid mistakes, but responsibility cannot be accepted for clerical or printer errors.

Moving?

Look to Classified Notices for practices available in your area.

Using Social Media Effectively in Your Physician Practice: One Institution's Experience

Lancaster General Health sees social media as an effective tactic to promote its approximately 22 physician practices. In September 2007, we launched our first social media marketing campaign using Facebook, YouTube, and Twitter. In November 2008, we added physician led-blogs to our website. More recently, we began a series of live question and answer chats where physicians participate in discussion forums with the general community.

Background of LG Health

Lancaster General Health (LG Health) is a not-for-profit health-care system located in south central Pennsylvania. LG Health includes Lancaster General Hospital, a 525-bed, acute-care Magnet hospital, Women & Babies Hospital, a 98-bed facility focused entirely on women's health care, and 12 outpatient facilities. The system includes a network of more than 20 primary and specialty care physician practices, as well as outpatient and retail clinics.

Getting on the Social Media Train

First, some simple guidelines:

1. Ensure patient privacy rules are respected. Since most social media tools require a two-way conversation, patient privacy rules still apply. Patients have the right to post their entire medical history on the Internet but physicians should still adhere to HIPAA and state privacy laws by not sharing any health information that could be linked to an individual patient.

2. Target your audience and post relevant information. Your posts must be pointed and directed to your audience. Some examples of effective posts we have noted at LG Health include:

- Patient testimonials
- Relevant and/or time-sensitive news
- New faculty
- Special events
- Brief videos of physicians, special events, new facilities, patients, etc.

3. Use your time wisely. To engage patients and followers, you should post fresh updated content on a regular basis. The rule of thumb for posting on Facebook and Twitter is one to three times a day; for blogs, plan to blog two to four times a month. Consider using your office staff to help post when possible.

4. That leads to the last point – track your results. The return on investment of social media is not easy to determine, as there is no easy or direct way to track whether social media presence leads to actual patient visits. However, we have had success using Google Analytics to measure hits to the website. A more direct and low-tech approach is to survey your new patients, asking where they heard about you to determine the efficacy of your social media.

Five Common Social Media Tools

Now that you know the ground rules, consider adopting these social media tools. If you don't have any social media, you might want to start with Facebook first and work your way up to a Q&A.

1. Facebook: It's easy to use and the number one social networking site. Your practice can have its own site that is more formal, with photos of the practice staff. You can mimic your own website if you have one. If you have a personal Facebook account, separate it from your practice account. At LG Health, we have a variety of Facebook pages promoting different service lines, ranging from a bariatric practice to a page for Lancaster doctors.

2. Twitter: What an easy way to reach out to many audiences – and great for doctors who don't have time to write a blog! Twitter has a 140-character limit and is perfect for health news alerts and quick updates. Tweet about a topic that is appropriate to the season or current events. For example, spring and fall are known for high pollen levels, so patients are interested in tips to combat allergies. LG Health has several Twitter accounts. For the physician arena, the family medicine residency program has had success in engaging residents and encouraging others on board via its Twitter account.

3. YouTube: It's the number two search engine tool, following Google. Those entertaining videos that are forwarded around can also be educational. All you need is a small camcorder and an interesting topic. For example, the video can present something like how to use an inhaler or how to know if you are having an asthma attack. However, since these can look unprofessional if you try to do it on the cheap, a practice might think twice about posting a homemade video. At LG Health, we reserve YouTube for larger marketing efforts, as it is more cost-intensive to produce a professional video.

4. Blog: The best ones are concise, focus on a specific topic, and are written in a conversational tone. There is very little maintenance involved with the blog since most of the comments are conversations between existing patients and prospective patients. We now have two to three physician bloggers for each major service line (for a total of 15 to 20 bloggers). You and your contributors should follow specific guidelines:

- Write in the first person
- Think conversational and storytelling
- Make sure blogs are easy to read – don't fill your blog with medical jargon.
- Recruit as many contributors/perspectives as possible, so it is not a chore that lands on all on one person.
- Engage your employees and patients: have them write about what they know. The best blogs are from the patient's perspective.

5. Q&As: You can provide question and answer sessions on your website live, but it takes planning and coordination of the event, or after the fact where the patients fill out a form, and, at a later time, the physician answers the question that is then posted.

Live Q&As are more dynamic because there is more interaction in the chat sessions. The accessibility to the physician and the discrete interactions are what make these Q&As more popular and successful. These also provide a way for prospective patients to learn more about the physician and can help the patient decide whether that physician will be a good fit. From a marketing standpoint, another benefit is that you can collect e-mail addresses of those who participate and follow up with selective information about the patient's area of interest. At LG Health, we sponsor several of these each year and find that they are well-attended. The downside, however, is that these Q&As will take a little more technical savvy to produce, so it may be out of the realm of a small practice.

The Future

Going forward, LG Health and its physician practices will be continuing to use social media to help increase patient loyalty, physician credibility, and online reputation. As technology changes, people change; therefore, health-care systems such as LG Health must follow the change and be innovative in ways to connect with patients. Another method for communicating to patients, although not strictly social media, are the patient portals that are often offered in the electronic health record (EHR) systems. Aside from simply displaying medical records online, most patient portals offer prescription refills, appointment requests, medication tracking, and secure messaging with a doctor. ■

Roxanne Bolinger, MEd
e-Health Communications Coordinator
and
Jan M. DeCew, BS
Information Sciences & Technology
Web Services Manager
Lancaster General Health
Lancaster, Pennsylvania

This interesting article presents the reader with some valuable insights from one institution's implementation and use of social media. The varied uses demonstrate the wide range of benefits that can be reaped from thoughtful adoption and expansion of social media into the many realms of a physician's practice or an institutional setting.

Vicki Tedeschi
ACCP Social Media Specialist

Participate Now: Join an ACCP NetWork to Interact Online

Want to discuss treatment protocols for idiopathic interstitial pneumonia? Or, find out if other institutions are having issues with reimbursement for titration studies?

Now there's one easy place to find all this activity. The new ACCP e-Community provides an online location where members can discuss treatments and clinical issues, as well as share resources. At this time, the e-Community is only open to members of the 23 NetWorks.

Launched in early March, more than 9,000 NetWork members can use the e-Community to:

- Share resources, including links to articles, case studies, and reports
- Interact with other members on topics of interest, including treatment protocols and new research
- Collaborate on presentations, research, and educational materials

Many NetWork members are finding the platform beneficial, including Dr. Jamalul Azizi Abdul Rahaman, FCCP, who has actively used the platform to discuss topics related to his specialty. "The ACCP e-Community is very useful and professional," says Dr. Rahaman.

"NetWork members have been asking for tools that make collaboration easier," says Dr. Jay I. Peters, FCCP, Council of NetWorks Chair. "The new e-Community offers a platform where they can build relationships across multiple disciplines and ask for input on everything from abstract development to difficult patient cases. We've seen a definite increase in activity within the e-Community. It's very exciting."

To participate in the ACCP e-Community, join an ACCP NetWork. Once you add a particular NetWork to your profile, you will receive an e-mail 1 to 2 weeks later with instructions on how to login to the e-Community and begin participating. For more information, visit this site: www.chestnet.org/accp/networks. ■

Why is this patient short of breath?

A simple, six-minute in-office test can help you find out with no capital risk to your practice.

In just six minutes Shape® can help drill down to the root cause of exertional dyspnea – right in the clinic. Shape is simple, objective and intuitive. With our pay-per-procedure plan there's no cost for the device. Shape elevates cardiopulmonary exercise testing to a new level.

Learn more by calling 1-888-SHAPE98 (888-742-7398)

or by visiting www.shapemedsystems.com.

SHAPE™