

This suggests the importance of interventions for patients who have multiple handovers during their admission, especially with the increasing use of night-float and nonteaching hospitalist services in academic centers. In addition, interventions can be designed and implemented specifically for those patients who are particularly vulnerable, such as elderly patients or those without a high degree of education.

At least 1 study has suggested that placing physician photographs in the patients' rooms may help them to identify physicians.<sup>9</sup> At the same time, patients should be encouraged to take specific measures to stay informed about who is involved in their care and what the responsibility level of each caregiver is. Going 1 step further, the Lewis Blackman Hospital Patient Safety Act,<sup>10</sup> recently enacted in South Carolina, mandates that all hospital personnel wear appropriate name tags that identify their name and their role to patients and that patients are provided with education on how to immediately contact the attending physician in charge of their care.

There are several limitations of this study. This single institution study may not be generalizable to other settings, such as community hospitals. Loss to follow-up raises concerns of selection bias. Fortunately, patients who were lost to follow-up did not significantly differ by their ability to correctly identify their inpatient physician. Patients lost to follow-up were, however, more likely to be African American, male, hospitalized longer, hospitalized in the last year, and without a primary care physician at the University of Chicago, highlighting the difficulty in following up this group of patients. Third, patients may not have understood the questions or misinterpreted the question to refer to their primary care physician. Because of this, during pilot testing of earlier questions, we added the phrase "caring for you in the hospital."

Despite these limitations, the majority of hospitalized patients are unable to name someone in charge of their care. This suggests that academic hospitals should focus on improving the ability of patients to understand the names and roles of their inpatient physicians.

Vineet Arora, MD, MA  
Sandeep Gangireddy, MD  
Amit Mehrotra, MD  
Ranjan Ginde, BA  
Megan Tormey, BA  
David Meltzer, MD, PhD

**Correspondence:** Dr Arora, Department of Medicine, University of Chicago, 5841 S Maryland Ave, MC 2007, AMB W216, Chicago, IL 60637 (varora@medicine.bsd.uchicago.edu).

**Author Contributions:** The authors had full access to all of the data in the study and take responsibility for the integrity of the data and the accuracy of the data analysis. *Study concept and design:* Arora and Meltzer. *Acquisition of data:* Arora, Gangireddy, Mehrotra, Ginde, and Meltzer. *Analysis and interpretation of data:* Arora, Gangireddy, Mehrotra, Ginde, and Meltzer. *Drafting of the manuscript:* Arora and Gangireddy. *Critical revision of the manuscript for important intellectual content:* Arora, Gangireddy, Mehrotra, Ginde, and Meltzer. *Statistical*

*analysis:* Arora, Gangireddy, and Meltzer. *Obtained funding:* Arora and Meltzer. *Administrative, technical, and material support:* Arora, Mehrotra, Ginde, and Meltzer. *Study supervision:* Arora and Meltzer.

**Financial Disclosure:** None reported.

**Funding/Support:** This study received funding from the University of Chicago Hospitals, the National Institutes of General Medical Sciences, and the Donald W. Reynolds Foundation.

**Additional Contributions:** Jennifer Higa, BA, and Korry Schwanz, BA, assisted in research.

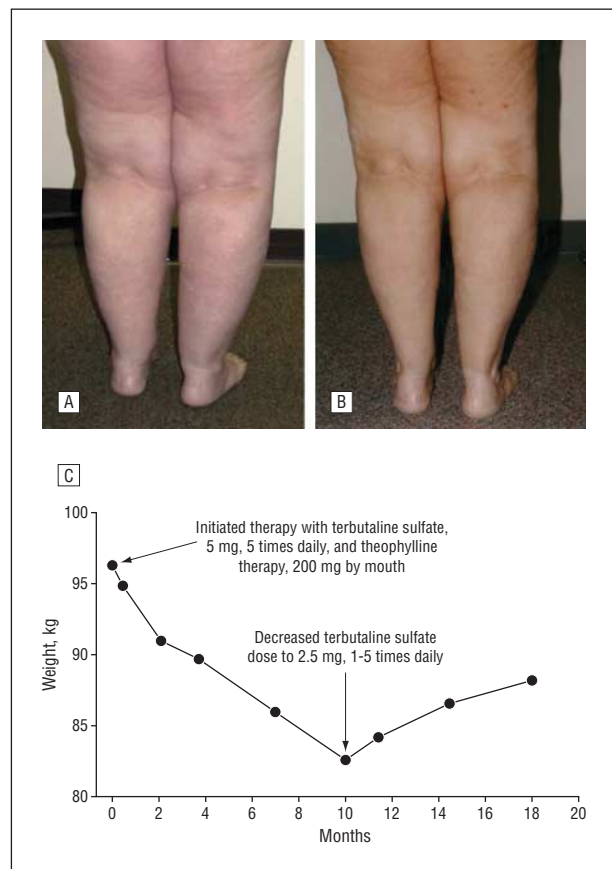
1. American Medical Association, Council on Ethical and Judicial Affairs. Fundamental elements of the patient-physician relationship. *JAMA*. 1990; 264(24):3133.
2. Agency for Healthcare Research and Quality (AHRQ) Patient Fact Sheet. 20 Tips to help prevent medical errors. <http://www.ahrq.gov/consumer/20tips.htm>. Accessed November 3, 2008.
3. Rhodes KV, Vieth T, He T, et al. Resuscitating the physician-patient relationship: emergency department communication in an academic medical center. *Ann Emerg Med*. 2004;44(3):262-267.
4. Santen SA, Hemphill RR, Prough EE, Perlowski AA. Do patients understand their physician's level of training? a survey of emergency department patients. *Acad Med*. 2004;79(2):139-143.
5. Meltzer D, Manning WG, Morrison J, et al. Effects of physician experience on costs and outcomes on an academic general medicine service: results of a trial of hospitalists. *Ann Intern Med*. 2002;137(11):866-874.
6. Roccaforte WH, Burke WJ, Bayer BL, Wengel SP. Validation of a telephone version of the mini-mental state examination. *J Am Geriatr Soc*. 1992;40(7):697-702.
7. Gertis M, Edgman-Levitan S, Daley J, Delbanco T. *Through the Patient's Eyes: Understanding and Promoting Patient Centered Care*. Hoboken, NJ: Jossey-Bass; 1993.
8. Cleary PD, Edgman-Levitan S, Roberts M, et al. Patients evaluate their hospital care: a national survey. *Health Aff (Millwood)*. 1991;10(4):254-267.
9. Francis JJ, Pankratz VS, Huddleston JM. Patient satisfaction associated with correct identification of physician's photographs. *Mayo Clin Proc*. 2001; 76(6):604-608.
10. Lewis Blackman Hospital Patient Safety Act. SC Code of Laws, Article 27, §44-7-3410 et seq (June 8, 2005).

## A Novel Therapy for Lymphedema

There is a broad differential to consider when evaluating a patient with angioedema, which can include capillary leak syndrome and lymphedema. Systemic capillary leak syndrome typically presents with hypotension, hemoconcentration, hypoalbuminemia, monoclonal gammopathy, and marked plasma leakage resulting in diffuse edema.<sup>1</sup> Prophylactic treatment with terbutaline sulfate and theophylline has been found to be effective for the prevention of systemic capillary leak syndrome exacerbations.<sup>2</sup>

The other unusual consideration is lymphedema, which is notoriously resistant to therapy, and only supportive measures are available (physical therapy, external compression, and surgery). We describe herein a patient with lymphedema who benefited from treatment with theophylline and terbutaline.

**Report of a Case.** A 53-year-old woman was referred for evaluation of recurrent angioedema that did not respond to several therapeutic modalities, including diuretics. Unusual features in her history included involvement of her abdominal wall and all 4 extremities with no pulmonary edema. Physical examination revealed nonpitting edema of her lower and upper extremities, as well as an indurated abdominal wall. Systemic capillary leak syndrome was



**Figure.** Clinical response to terbutaline sulfate and theophylline. A, The patient at presentation. B, The patient after several weeks of therapy. C, The patient's weight as a function of the terbutaline sulfate dose.

considered in the differential diagnosis. Pending the outcome of her testing, the prophylactic regimen for idiopathic capillary leak syndrome was initiated: terbutaline sulfate, 5 mg 5 times daily, and theophylline, 200 mg twice daily.<sup>1</sup> Evaluation included a normal C1 esterase inhibitor level; serum immunofixation electrophoresis showed a monoclonal IgGκ band (commonly seen in systemic capillary leak syndrome), which was eventually diagnosed as monoclonal gammopathy of unknown significance. Given the abnormal appearance of her abdominal wall, amyloidosis was considered. Results from a fine-needle aspiration were negative for amyloid. Findings from an abdominal wall punch biopsy were consistent with lymphedema, with scattered dilated capillary lymphatic spaces in the superficial and deep dermis. Evaluation for a cause of lymphedema included an evaluation for malignant neoplasms with a full-body computed tomographic scan showing axillary lymphadenopathy. An axillary lymph node biopsy specimen was negative for malignant cells. One week after the initiation of terbutaline and theophylline therapies, there was a marked improvement of her lymphedema. Her weight decreased by 14 kg after 10 months of treatment (Figure, A and B). There was a direct correlation identified between the dose of terbutaline and the degree of lymphedema. Attempts to wean the terbutaline from 5 tablets to less than 3 tablets daily resulted in increased edema and weight, which would resolve by resuming the higher dose (Figure, C).

**Comment.** Lymphedema is caused by insufficient lymph transport owing to lymphatic hypoplasia, impaired lymphatic function, or obstruction of lymph flow.<sup>3</sup> Increased lymphatic endothelial cell permeability is probably an important contributor. An increased cyclic adenosine monophosphate (cAMP) level is known to decrease endothelial cell permeability.<sup>4</sup> Terbutaline increases cAMP level by stimulating adenylyl cyclase.<sup>5</sup> Theophylline increases intracellular cAMP by inhibiting phosphodiesterase.<sup>6</sup> With both medications contributing to an increase in cAMP level, this likely resulted in decreased endothelial cell permeability. We propose the use of this therapeutic modality for patients with idiopathic lymphedema.

John C. Moore, MD  
Zuhair K. Ballas, MD

**Correspondence:** Dr Moore, Department of Internal Medicine, University of Iowa Hospitals and Clinics, C42/E-13, GH, 200 Hawkins Dr, Iowa City, IA 52242 (john-c-moore@uiowa.edu).

**Author Contributions:** Study concept and design: Moore and Ballas. Acquisition of data: Ballas. Analysis and interpretation of data: Ballas. Drafting of the manuscript: Moore. Ballas. Critical revision of the manuscript for important intellectual content: Ballas. Administrative, technical, and material support: Ballas. Study supervision: Ballas.

**Financial Disclosure:** None reported.

**Previous Presentation:** This study was presented as a poster at the 2007 American College of Allergy, Asthma & Immunology meeting, November 10-11, 2007; Dallas, Texas.

1. Dhir V, Arya V, Malav IC, Suryanarayanan BS, Gupta R, Dey AB. Idiopathic systemic capillary leak syndrome(SCLS): case report and systematic review of cases reported in the last 16 years. *Intern Med.* 2007;46(12):899-904.
2. Tahirkheli NK, Greipp PR. Treatment of the systemic capillary leak syndrome with terbutaline and theophylline: a case series. *Ann Intern Med.* 1999; 130(11):905-909.
3. Cueni LN, Detmar M. New insights into the molecular control of the lymphatic vascular system and its role in the disease. *J Invest Dermatol.* 2006; 126(10):2167-2177.
4. Fischmeister R. Is cAMP good or bad? depends on where it's made. *Circ Res.* 2006;98(5):582-584.
5. Brogden RN, Speight TM, Avery GS. Terbutaline: a preliminary report of its pharmacological properties and therapeutic efficacy in asthma. *Drugs.* 1973; 6(5):324-332.
6. Vassallo R, Lipsky J. Theophylline: recent advances in the understanding of its mode of action and uses in clinical practice. *Mayo Clin Proc.* 1998;73(4): 346-354.

## COMMENTS AND OPINIONS

### Physician Influences on Patient Care: Random vs Fixed Effects

**W**e wanted to raise a concern about the article published in the *Archives* titled "Physician Performance and Racial Disparities in Diabetes Mellitus Care."<sup>1</sup> One of the main conclusions that the authors draw is that very little of the observed disparities in intermediate outcomes among black and white patients with diabetes is mediated by physician-level factors. Although that conclu-