Letters to the Editor

The Risk of Corticosteroids in Community-Acquired Pneumonia

To the Editor: A 71-year-old man with diabetes mellitus and osteoarthritis of the knee presented with a five-day history of epigastric pain and melena. Two weeks before his presentation, he completed a seven-day course of levofloxacin (Levaquin) and prednisone for the treatment of community-acquired pneumonia (CAP). On presentation, he was afebrile, hemodynamically stable, and breathing comfortably on ambient air. He had tenderness to palpation in the epigastric region and coarse rales on auscultation at the right lower base. Laboratory testing was notable only for a newly decreased hemoglobin level of 11 g per dL (110 g per L; range 13.5 to 17.5 g per dL [135 to 175 g per L]). An esophagogastroduodenoscopy was performed, which demonstrated a bleeding peptic ulcer that was treated with thermal coagulation.

The use of corticosteroids in clinical trials of CAP as adjunct to antibiotics dates back 60 years. It was hypothesized that corticosteroids could dampen the bacterial endotoxin-mediated cytokine storm, prevent progression to septic shock, and treat critical illness-related corticosteroid insufficiency.[1] Today, there is significant variability in the use of corticosteroids for the treatment of CAP in clinical practice. Our case illustrates an adverse patient event caused by inappropriate use.

It is essential to distinguish the management of severe CAP from nonsevere CAP. The Infectious Diseases Society of America/American Thoracic Society (IDSA/ATS) 2019 guidelines define severe CAP as requiring support in a critical care environment.[2] The previous IDSA/ATS 2007 guidelines did not comment on the routine use of corticosteroids for severe CAP, but the guidelines were updated in 2019 to advocate for use only in patients with septic shock refractory to vasopressors and fluid resuscitation.[3]

Nonsevere CAP occurs in patients treated in the outpatient or general inpatient setting. The 2007 and 2019 IDSA/ATS guidelines recommend against the routine use of corticosteroids in nonsevere CAP. Previous studies have not demonstrated a mortality benefit and showed increased rates of hyperglycemia.[4] Furthermore, the harms associated with corticosteroid use are likely underreported. Studies evaluating the safety of corticosteroids often exclude patients at the highest risk of complications, such as those with a history of gastrointestinal bleeding, neuropsychiatric conditions, immunocompromised state, and concurrent use of nonsteroidal anti-inflammatory drugs. Hyperglycemia, fluid retention, hypertension, delirium, psychosis, insomnia, osteonecrosis, and gastrointestinal bleeding may consequently be underestimated. The potential harmful adverse effects of corticosteroids for nonsevere CAP outweigh the potential benefits. Our case illustrates the importance of avoiding the use of corticosteroids for the treatment of CAP.

Kevin G. Buell, MBBS

Eric M. Lander, MD
Nashville, Tenn.
Email: kevin.g.buell@vumc.org

Author disclosure: No relevant financial affiliations.

References

1. Sibila O, Agusti C, Torres A. Corticosteroids in severe pneumonia. *Eur Respir J*. 2008;32(2):259-264.
2. Metlay JP, Waterer GW, Long AC, et al. Diagnosis and treatment of adults with community-acquired pneumonia. An official clinical practice guideline of the American Thoracic Society and Infectious Diseases Society of America. *Am J Respir Crit Care Med*. 2019;200(7):e45-e67.
3. Mandell LA, Wunderink RG, Anzueto A, et al. Infectious Diseases Society of America/American Thoracic Society consensus guidelines on the management of community-acquired pneumonia in adults. *Clin Infect Dis*. 2007;44(suppl 2):S27-S72.
4. Stern A, Skalsky K, Avni T, et al. Corticosteroids for pneumonia. *Cochrane Database Syst Rev*. 2017;(12):CD007720. ■

Send letters to afplet@aafp.org, or 11400 Tomahawk Creek Pkwy., Leawood, KS 66211-2680. Include your complete address, email address, and telephone number. Letters should be fewer than 400 words and limited to six references, one table or figure, and three authors.

Letters submitted for publication in *AFP* must not be submitted to any other publication. Possible conflicts of interest must be disclosed at time of submission. Submission of a letter will be construed as granting the AAFP permission to publish the letter in any of its publications in any form. The editors may edit letters to meet style and space requirements.

This series is coordinated by Kenny Lin, MD, MPH, deputy editor.