Short courses of steroids linked to severe adverse events

ACP Internist Weekly Staff

Short bursts of treatment with oral corticosteroids are associated with severe adverse events, even in young people with no comorbid conditions at baseline, a recent self-controlled case series found.

Researchers used the National Health Insurance Research Database of medical claims records in Taiwan to look at adults ages 20 to 64 years with continuous enrollment in the National Health Insurance program from 2013 through 2015. They assessed incidence rates of severe adverse events (e.g., GI bleeding, sepsis, and heart failure) in nonsteroid users and those who received steroid bursts, defined as short courses of oral corticosteroids for 14 or fewer days. They also looked at incidence rate ratios (IRRs) for severe adverse events within five to 30 days and within 31 to 90 days after initiation of steroid therapy. Results were published on July 7 by *Annals of Internal Medicine*.

Of nearly 16 million adult participants, about 4 million (25%) received at least one steroid burst during the study period. The study included 2,623,327 participants (mean age, 38 years; 55.3% women) with a prescription for a single steroid burst, 84.5% of whom had a Charlson Comorbidity Index score of 0. The most common indications for steroids were skin disorders and respiratory tract infections, and the median duration of exposure was three days.

Incidence rates of adverse events per 1,000 person-years in participants prescribed steroid bursts were 27.1 (95% CI, 26.7 to 27.5) for GI bleeding, 1.5 (95% CI, 1.4 to 1.6) for sepsis, and 1.3 (95% CI, 1.2 to 1.4) for heart failure, which were higher than those for nonsteroid users (rate differences, 10.3 [95% CI, 9.9 to 10.7], 0.1 [95% CI, 0.01 to 0.2], and 1.0 [95% CI, 0.9 to 1.1] per 1,000 person-years, respectively). While rates of GI bleeding (IRR, 1.80; 95% CI, 1.75 to 1.84), sepsis (IRR, 1.99; 95% CI, 1.70 to 2.32), and heart failure (IRR, 2.37; 95% CI, 2.13 to 2.63) significantly increased within five to 30 days after steroid therapy initiation, they attenuated during the subsequent 31 to 90 days.

Limitations of the study include the fact that data on disease severity and major lifestyle factors were not available, the authors noted. In addition, the reported IRRs tended to be smaller in participants with comorbid illnesses than in those without, which indicated that physicians might avoid administering steroids to patients with comorbid conditions, they said.

While many clinicians believe steroid bursts are harmless, especially in "low-risk" patients, these findings provide evidence that this practice may risk serious harms, an accompanying editorial noted.

"Medication-related risks for [adverse events] can, of course, be outweighed by major treatment benefit," the authors wrote. "However, this study and prior work show that corticosteroid bursts are frequently prescribed for self-limited conditions,

where evidence of benefit is lacking. ... As providers, we must reflect on how and why we prescribe corticosteroids to develop strategies that prevent avoidable harms."