

Potential Role of Corticosteroids in Immunocompetent Patients with Severe Community-Acquired Pneumonia

A recent randomized controlled trial ([CAPE-COD](#)) suggested patients with severe community-acquired pneumonia (CAP) may benefit from adjunctive hydrocortisone with antibiotics. In patients who do not meet the criteria (i.e., non-severe CAP), corticosteroids are NOT recommended. Several randomized controlled trials in CAP that did not utilize these criteria or used alternative steroid regimens demonstrated no improvement in outcomes, and potentially harmful effects due to the numerous adverse effects associated with corticosteroids, e.g., secondary pneumonia/sepsis, gastrointestinal bleeding, hyperglycemia, delirium, and neuromuscular weakness. Thus, adherence to this specific guidance is recommended when considering steroid use in CAP. In complex clinical situations, consulting with infectious diseases or pulmonary is advised.

The diagnosis of CAP is challenging and when the diagnosis is in question (e.g., concomitant heart failure exacerbation, aspiration), steroid use should be avoided unless there is another indication for their use. Corticosteroids are NOT indicated for hospital-acquired or ventilator-associated pneumonia. These guidelines apply only to non-severely immunocompromised adults.

Below are specific clinical scenarios demonstrating potential benefits when using the specific regimen described:

- Severe CAP meeting the following criteria (adapted from the [CAPE-COD trial](#)):
 1. Clear evidence of CAP:
 - Clinical signs and symptoms of pneumonia PLUS radiologic evidence of pneumonia on hospital admission or within 48 hours of admission
 2. Severe disease defined by one of the following:
 - Admitted to the intensive care unit (ICU)
 - Respiratory failure requiring mechanical ventilation (invasive or non-invasive)
 - High-flow oxygen therapy ($FiO_2 \geq 50\%$)
 3. Excludes infections due to influenza, COVID-19 (see below), and/or fungal/mycobacterial infection

- Regimen (administer within first 24 hours):
 - Hydrocortisone 50mg IV q6h for 4 days
 - Evaluate clinical status frequently:
 - If improving and weaning off mechanical ventilation or high-flow oxygen at day 4: discontinue hydrocortisone.

- If improving, but still requiring mechanical ventilation or high-flow nasal cannula at day 4: continue up to 4 additional days with a taper: 50mg q12h for 2 days, then 50mg once daily for 2 days (total 8 days)
- If not clinically improved at day 4: continue 50mg q6h for 3 additional days, then taper: 50mg q12h for 4 days, then 50mg once daily for 3 days (total 14 days)

Other Scenarios for Steroid Use in Pneumonia:

- CAP due to COVID-19
 1. See [COVID-19 treatment guidance](#)
- Refractory septic shock per [Surviving Sepsis Guidelines](#):
 1. SBP <90 mmHg after adequate fluid resuscitation plus vasopressors
 2. Regimen:
 - Hydrocortisone 50mg IV q6h for no longer than 7 days
- Concomitant COPD exacerbation
 1. Regimen:
 - Prednisone 40mg PO daily for 5 days
 - If unable to take PO: Methylprednisolone 125mg IV daily for 5 days
- Underlying condition warranting steroids (e.g., adrenal insufficiency, etc)
 1. Specific to the needs of patient's underlying condition regarding regimen and dose