ICU
MANAGEMENT & PRACTICE

Corticosteroids in Critically Ill Patients With Sepsis, ARDS and CAP

Critical illness-related corticosteroid insufficiency (CIRCI) is commonly seen in criticall ill patients and involves systemic inflammation, hypothalamus–pituitary–adrenal axis dysregulation, altered cortisol metabolism, and tissue glucocorticoid resistance.

A task force of international experts from the Society of Critical Care Medicine (SCCM) and the European Society of Intensive Care Medicine (ESCIM) provided guidelines for diagnosing and managing CIRCI in 2008 and updated them in 2017. With new trials on corticosteroid use in acutely ill patients, an update to these recommendations was necessary.

This summary updates guidelines focusing on sepsis and septic shock, acute respiratory distress syndrome (ARDS), and community-acquired pneumonia (CAP). The panel developed five specific Population, Intervention, Control, and Outcomes (PICO) questions for this update and conducted systematic reviews to identify the best evidence for each question. They assessed the evidence using the Grading of Recommendations Assessment, Development, and Evaluation (GRADE) approach and formulated recommendations with the evidence-to-decision framework, designating the strength of each recommendation as either strong or conditional . Recommendations were provided for both adult and paediatric patients based on available evidence.

Corticosteroids in Sepsis and Septic Shock

Recommendations:

1A) For adult patients with septic shock, it is suggested to administer corticosteroids (conditional recommendation, low certainty).

1B) High dose/short duration corticosteroids (over 400 mg/day of hydrocortisone equivalent for less than 3 days) should not be administered to adult patients with septic shock (strong recommendation, moderate certainty). No recommendation is made for corticosteroid use in paediatric patients with sepsis.

Rationale:

Studies primarily involving patients with septic shock showed small to moderate benefits. Although there was a slight mortality reduction with low to moderate certainty, there was significant evidence of reduced shock reversal and organ dysfunction. Given the global prevalence of septic shock, even minor mortality reductions could have substantial impacts, and improved shock reversal and reduced organ dysfunction are beneficial for resource utilisation. Adverse effects are uncertain but likely minimal. The intervention is considered feasible, equitable, and acceptable to healthcare providers. The panel advises against high-dose, short-duration corticosteroids due to potential adverse effects. For sepsis without shock but with severe CAP or ARDS, corticosteroids are suggested. The recommendation's applicability to paediatric patients is uncertain due to limited studies.

Corticosteroids in Acute Respiratory Distress Syndrome (ARDS)

Recommendation:

2A) For adult critically ill patients with ARDS, it is suggested to administer corticosteroids (conditional recommendation, moderate certainty). No recommendation is made for corticosteroid use in paediatric patients with ARDS.

Rationale:

Corticosteroids provide moderate benefits, primarily through reducing hospital mortality, supported by moderate certainty evidence. This benefit is more significant when corticosteroids are administered for over seven days. The optimal dose, timing, and type of corticosteroid are not established and should be determined based on clinician preference and other factors. This contrasts with the 2017 recommendation of administering methylprednisolone at 1 mg/kg within 14 days of ARDS diagnosis. The potential adverse effects and cost-effectiveness of corticosteroids are still unknown, but their use is considered feasible and acceptable by healthcare providers. Overall, the panel believes the benefits of corticosteroids outweigh the risks. The recommendation's applicability to paediatric patients is uncertain due to a lack of randomised controlled trials in this group.

Corticosteroids in Community-Acquired Pneumonia (CAP)

Recommendation:

3A) It is recommended to administer corticosteroids to adult patients hospitalised with severe bacterial community-acquired pneumonia (strong recommendation, moderate certainty). No recommendation is made for corticosteroid use in paediatric patients with CAP.

Rationale:

Corticosteroids show significant benefits in severe CAP, with moderate certainty evidence indicating reduced hospital mortality and decreased need for invasive mechanical ventilation. These benefits are not observed in less severe CAP cases. Although the potential adverse effects are not well-documented, they are expected to be minimal. The use of corticosteroids in CAP is considered feasible, acceptable, and potentially cost-saving. Due to a lack of sufficient studies, no recommendations can be made for corticosteroid use in paediatric patients with CAP.

Source: Critical Care Medicine

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