



Corticosteroids for the prevention of ventilator-induced lung injury?

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Numerous pharmacological therapies for acute respiratory distress syndrome (ARDS) have failed to demonstrate a benefit in multicenter clinical trials.⁽¹⁾ Given that dysregulated inflammation is a prominent feature of ARDS, systemic corticosteroids are thought to represent a potentially beneficial therapy.⁽²⁾

Meta-analyses of the use of corticosteroid therapy in ARDS have yielded inconsistent conclusions. That is primarily because ARDS is a heterogeneous disease with various etiologies and clinical courses. Other factors include different outcome measures and the fact that patients are usually enrolled within 48 h after meeting the criteria for a diagnosis of ARDS, while already on mechanical ventilation, which could delay the initiation of treatment until several days after the onset of lung injury.⁽²⁾

In this issue of the JBP, Reis et al.⁽³⁾ publish a very well-designed experimental study that assessed the effects of dexamethasone pre-treatment on ventilator-induced lung injury (VILI), a well-recognized and important aspect of the pathophysiology of ARDS. Experimental VILI was induced in Wistar rats by means of mechanical ventilation at a high tidal volume. The rats were divided into two groups according to the previous intraperitoneal administration of dexamethasone or saline at 30 min before VILI induction. The main result of the study was

that dexamethasone administration was able to attenuate the inflammatory response caused by VILI, as measured by a histopathological lung injury score, by counting the leukocytes and neutrophils in the BAL fluid, and by assessing its impact on oxygenation at 4 h and 24 h after the initial insult (injurious ventilation). One drawback of the investigation is the lack of data on the molecular mechanisms involved in the dexamethasone-induced attenuation of experimental VILI.⁽⁴⁾

Corticosteroids continue to be one of the most widely investigated pharmacological treatments for ARDS. One recent publication showed that short-term, low-dose corticosteroid therapy can have an impact on survival in aspiration-related ARDS.⁽⁵⁾ It is plausible that the timing (either prophylactic or after the initial insult), the dose, and the duration of the therapy, as well as the etiology of the lung injury, are all important factors in determining the response of patients with ARDS to the administration of systemic corticosteroids. Future clinical trials must take all of these issues into account. The controversy regarding the possible benefits of this class of drugs in ARDS is therefore still "alive and kicking". The work of Reis et al.⁽³⁾ generates even more interest in pharmacological approaches to prevent or treat VILI, especially in the role of corticosteroids in such injury, mainly as a preventive measure in patients at risk for ARDS.

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