Ketorolac may control more than pain

ABSTRACT

Life-threatening acute respiratory distress syndrome (ARDS) complicates the recovery of patients with burn and inhalation injury. The study by Enkhbaatar and co-workers in this issue of Clinical Science suggests that reducing the early and robust inflammatory cascade may provide patients with protection from developing cardiopulmonary compromise seen early after burn and inhalation injury.

Extensive deep burns combined with inhalation injury are associated with high morbidity and mortality. The inflammatory cascade set forth in response to the injury can result in further injury, both at the local site of injury and in tissues distant from the burn. The domino effect of the inflammatory mediators can have profound and disastrous physiological consequences, resulting in a response to the injury that may be more severe than the initial injury, culminating in the clinical picture of acute respiratory distress syndrome (ARDS).

Several studies have shown that burn and inhalation injury induces nitric oxide (NO) synthase and cyclo-oxygenase (COX), leading to enhanced production of NO [1–5], and reducing NO production improves the pulmonary manifestations [6]. Based on these and related data, Enkhbaatar et al. [7] in this issue of Clinical Science set out to determine whether a readily available pharmacological inhibitor of COX would inhibit NO production and reverse the cardiopulmonary derangements seen in the initial response to burn and inhalation injury.

Enkhbaatar et al. [7] clearly demonstrate that ketorolac, if given early, decreases the severity of the cardiopulmonary derangements seen within the first 48 h. Although ketorolac is currently used for parenteral analgesia, this study [7] shows an additional benefit of non-steroidal anti-inflammatory drugs (NSAIDs) in regulating the harmful effects of inflammation in a trauma setting.

This study [7] raises further questions: does the beneficial effect of ketorolac continue after the first 48 h with or without continued dosing? In addition, burn patients benefit from early excision and grafting [8], often with large blood loss and the need for blood transfusion. Although similar studies [9,10] have found little evidence of increased bleeding induced by ketorolac, will a bleeding side-effect of ketorolac be uncovered in the compromised trauma patient receiving repeated doses of ketorolac?

The robust inflammatory response set forth in response to severe burn and inhalation injury can lead to life-threatening ARDS. Drugs that can be given safely and parenterally to regulate the inflammatory response in these settings are likely to lead to improved survival. However, the long-term benefits and risks of ketorolac in this setting remain unknown. Whereas the improvement in early cardiopulmonary function appears promising, the ultimate value of a drug can only be discerned by a prospective randomized clinical trial. Enkhbaatar et al. [7] are to be commended for a well-executed experimental study that lays the foundation for such a clinical study.

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REFERENCES


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