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Systemic Responses to Burn Injury

of

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**Abstract:** The major causes of death in burn patients include multiple organ failure and infection. It is important for the clinician to understand the pathophysiology of burn injury and the effects it will have on the pharmacokinetics of a drug. The local and systemic inflammatory response to thermal injury is extremely complex, resulting in both local burn tissue damage and deleterious systemic effects on all other organ systems distant from the burn area itself. Thermal injury initiates systemic inflammatory reactions producing burn toxins and oxygen radicals and finally leads to peroxidation. The relationship between the amount of products of oxidative metabolism and natural scavengers of free radicals determines the outcome of local and distant tissue damage and further organ failure in burn injury. The injured tissue initiates an inflammation-induced hyperdynamic, hypermetabolic state that can lead to severe progressive distant organ failure. Despite recent advances, multiple organ failure (e.g., cardiac instability, respiratory or renal failure) and immune dysfunction remain major causes of burn morbidity and mortality. Further experimental and clinical studies will hopefully lead to a more complete understanding of these pathological processes. From that point it should be then possible to develop improved treatments for burn patients.

**Key Words:** Thermal injury, multiple organ failure, oxygen radicals, proinflammatory cytokines

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