

A Comparison of inflammatory markers in two different CLP procedures in murine polymicrobial sepsis model

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Abstract

Introduction: Sepsis, a common and costly cause of inpatient mortality in both sexes and all age groups (particularly in intensive care units), ensues an inflammatory process involving a variety of pathogen-expressed conserved structures called pathogen associated molecular pattern (PAMP) which are considered the main cause of oxidative stress and increase in inflammatory markers.

Methods and Results: In this murine model study, male Wistar rats were assigned into three groups: CLP with gauge 18, CLP with gauge 21, and a sham group (a group without CLP). Subsequently, 24 hours following the surgery, all animals were sacrificed and inflammatory markers such as myeloperoxidase (MPO), reactive oxygen species (ROS) and lipid peroxidation (LPO) were measured in their cardiac tissues. In CLP group with gauge 18, LPO, ROS, and MPO were significantly increased in comparison with the other two groups. Moreover, although lower in comparison with the gauge 18 CLP group, LPO, ROS, and MPO were significantly higher in gauge 21 CLP group compared to the sham group.

Conclusions: In murine models of sepsis, the gauge size can be influential in study outcomes and inflammatory changes observed in gauge 18 CLP mice can be considered as the most reliable and clinically-relevant indicators of sepsis-induced inflammation in humans.

Key words: Cecal ligation and puncture, Sepsis, Lipid peroxidation, Myeloperoxidase, Reactive oxygen species, Cardiac tissues.