

## Effect of redox environment modulation on inflammatory parameters of pneumonia-induced sepsis in mice

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**Objective:** The aim of this study was to evaluate the influence of an oxidizing agent (5,5'-Dithiobis(2-nitrobenzoic acid) - DTNB) and a reducing agent (Dithiothreitol - DTT) of sulfhydryls on the inflammatory, biochemical and bacterial parameters, as well as the formation of nitrosothiols in the pulmonary parenchyma of animals submitted to pneumonia-induced sepsis.

**Methods:** Female Swiss mice were injected intracheally with  $10^8$  CFU of *Klebsiella pneumoniae* and treated with DTNB and/or DTT (both 31.25, 63 or 126  $\mu\text{mol} / \text{kg}$ , s.c.), 12 hours after sepsis onset. Twenty-four hours after sepsis induction, the animals were euthanized, and the following parameters were evaluated: pulmonary capillary permeability, leukocyte migration, plasma nitrate and nitrite levels, proteins in the alveolar lavage, bacterial spread, nitrosothiol quantification, and mortality.

**Results:** DTT, in the dose schedule used, had no effect on inflammatory and biochemical parameters. DTNB decreased the formation of pulmonary edema, leukocyte migration to the primary focus, local production of nitric oxide and the production of exudate. In addition, DTNB decreased bacterial spreading and nitrosothiol formation in the lung parenchyma. Finally, DTNB decreased mortality. Although DTT had no influence on mortality, its administration one hour after the DTNB reversed the former protection afforded by DTNB.

**Conclusion:** These results show that the oxidation of sulfhydryls by DTNB has improved the inflammatory profile of the host, and that one of the mechanisms of modulation of the redox system by DTNB is the reduction of nitrosothiol levels.

Financial support: CNPq and CAPES. All procedures have been approved by the University Committee for Animal Use.