

Microdialysis for Measurement of Hepatic and Systemic Nitric Oxide Biosynthesis in Septic Rats

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摘要

Abstract

BACKGROUND: We sought to compare two techniques, microdialysis and repeated blood withdrawal, for serial assessment of hepatic and systemic nitric oxide (NO) biosynthesis in septic rats. **METHODS:** Rats were randomly allocated to either microdialysis or blood withdrawal groups. Two microdialysis probes, one in liver and the other in right atrium, were placed in rats in the microdialysis group. Half of the rats from each group were then given lipopolysaccharide (LPS) to induce NO production. The other half of the rats from each group were injected with vehicle (normal saline) to serve as controls. In the microdialysis group, dialysate (30 microl) was collected every 30 min. In the blood withdrawal group, 0.3 ml of blood was drawn every 30 min. Sampling was performed up to 6 h after injection of LPS or vehicle. Hemodynamics, hepatic and systemic NO concentrations, and iNOS expression in harvested liver tissues were assayed. **RESULTS:** Repeated blood withdrawal by itself caused a significant decrease in blood pressure and induced hepatic iNOS expression. Microdialysis, on the contrary, reliably detected LPS-induced NO production without resulting either in hemodynamic changes or in iNOS induction in liver tissue. **CONCLUSIONS:** Microdialysis provides serial measure of hepatic and systemic NO concentrations in LPS-treated rats without the need for removal of tissue.