

Melatonin prevents endotoxin-induced circulatory failure in rats

蕭哲志

Wu CC;Chiao CW;Hsiao G;Chen A;Yen MH

摘要

Abstract

The pineal secretory product melatonin was found to exert protective effects in septic shock. In a host infected by bacterial lipopolysaccharide (LPS), the expression and release of proinflammatory tumor necrosis factor- α (TNF- α) is rapidly increased, suggesting that TNF- α is associated with the etiology of endotoxic shock. Recent reports show that the expression of NO synthase (NOS) II and the production of superoxide anion (O₂⁻) also contribute to the pathophysiology of septic shock. In the present study we demonstrate that melatonin prevents circulatory failure in rats with endotoxemia and improves survival in mice treated with a lethal dose of LPS. The beneficial hemodynamic effects of melatonin in the endotoxemic animal appear to be associated with the inhibition of (i) the release of TNF- α in plasma, (ii) the expression of NOS II in liver, and (iii) the production of O₂⁻ in aortae. In addition, the infiltration of polymorphonuclear neutrophils into the liver from the surviving LPS mice treated with melatonin was reduced. Thus, our results support the clinical use of melatonin in endotoxemia