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Anti-inflammation effects of hydrogen saline in LPS activated macrophages and carrageenan induced paw oedema

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Abstract

Background: Oxidative stress is thought to play an important role in the pathogenesis of inflammation. Recent studies have found that hydrogen gas has the effect of eliminating free radicals. Whether hydrogen saline (more convenient to be used than hydrogen gas) has the anti-inflammation effect or not is still unknown.

Methods: Carrageenan-induced paw oedema and LPS-activated macrophages are studied in this article. Injection of carrageenan into the foot of a mouse elicited an acute inflammatory response characterized by increase of foot volume and infiltration of neutrophils. While tumor necrosis factor α (TNF- α) secreted by activated macrophages was determined by ELISA and real-time PCR.

Results: All parameters of inflammation (foot volume, infiltration of neutrophils, amount of TNF- α and the level of TNF- α 's mRNA) were attenuated by the hydrogen saline treatment.

Conclusion: As a more convenient way than inhaling H₂, hydrogen saline exhibits a protective effect against inflammation and it might provide a novel therapeutic approach for inflammatory diseases.

Figures

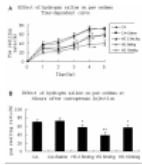


Figure 1 Effect of treated with different...

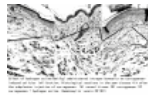


Figure 2 Effect of hydrogen saline(5 ml/kg)...

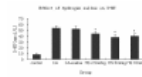


Figure 3 Hydrogen saline(range from 2.5 ml/kg...

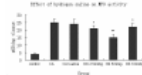


Figure 4 Effect of different dose of...

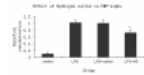


Figure 5 Expression of mRNA for TNF-α...

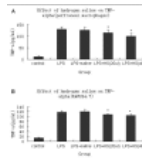


Figure 6 Hydrogen saline(20 or 40 μl...

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