

中文題目：麩醯胺酸能保護動物模式之呼吸器引發肺損傷

英文題目：Glutamine can protect ventilator-induced lung injury in a rat Model

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Background : The mortality rate of patients with acute respiratory distress syndrome (ARDS) is still high despite of using protective ventilatory strategies. We sought to examine the pharmacological effects of glutamine (GLN) in a two-hit model of endotoxin-induced inflammation followed by ventilator-induced lung injury (VILI). We hypothesized that the administration of GLN ameliorates the VILI.

Methods : Sprague Dawley rats were anesthetized and given intratracheally lipopolysaccharide (LPS) as a first hit to induce lung inflammation, followed 24 h later by receiving a second hit of mechanical ventilation with either low tidal volume (6 ml/kg) with 5 cm H₂O of positive end-expiratory pressure (PEEP) or high tidal volume (22 ml/kg) zero PEEP for 4 h. GLN or lactated Ringer's solution as placebo, was administered intravenously 15 min prior to mechanical ventilation. Thus, six groups of 10 animals each were studied: naive control animals without LPS nor ventilator (Naive); LPS-challenged animals received no mechanical ventilation (Control); LPS-challenged animals received mechanical ventilation at low V_t (LV); LPS-challenged animals received mechanical ventilation at high V_t (HV); LPS-challenged animals received mechanical ventilation at low V_t and treated with GLN (LVG); and LPS-challenged animals were ventilated with high V_t and received GLN (HVG).

Results : The hemodynamics including MAP and heart rates were similar at baseline and were not different in all animals during the study. In the LPS-challenged rats ventilated with high tidal volume, the treatment with GLN improved lung injury indexes, lung mechanics and cytokine response as compared to the placebo group.

Conclusion : The administration of GLN given immediately prior to mechanical ventilation maybe beneficial in the context of reducing VILI.

關鍵字：*ARDS; mechanical ventilation; glutamine; cytokines.*