

An experimental Study on Protective Effect of Peiminine against Mechanical Ventilation-Induced Lung Injury in Mice

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SUMMARY. This work investigated the protective effects of peiminine on mechanical ventilation-induced lung injury (MVLI) in mice. Twenty-four mice were randomly divided into control, MVLI and peiminine groups. The peiminine group was treated with 1 mg/kg peiminine by gavage for seven days. Then, the MVLI model was constructed in MVLI and peiminine groups. After 4 h of mechanical ventilation, compared to MVLI group, in peiminine group the blood partial pressure of oxygen was significantly increased ($p < 0.05$), the total protein concentration and total cell number in bronchoalveolar lavage fluid were significantly decreased ($p < 0.05$), the lung wet/dry weight ratio was significantly decreased ($p < 0.05$), lung tissue tumor necrosis factor α and interleukin 1β levels were significantly decreased ($p < 0.05$), the lung tissue superoxide dismutase level was significantly increased ($p < 0.05$), and the lung tissue malondialdehyde level was significantly decreased ($p < 0.05$). In summary, the peiminine pretreatment can mitigate the MVLI in mice by inhibiting the inflammatory reaction and oxidative stress in lung tissue.

RESUMEN. Este trabajo investigó los efectos protectores de la peiminina sobre la lesión pulmonar inducida por ventilación mecánica (MVLI) en ratones. Se dividieron aleatoriamente veinticuatro ratones en grupos de control, MVLI y peiminina. El grupo de peiminina se trató con 1 mg/kg de peiminina por sonda durante siete días. Luego, se construyó el modelo MVLI en grupos MVLI y peiminine. Después de 4 h de ventilación mecánica, en comparación con el grupo MVLI, en el grupo de peiminina la presión parcial de oxígeno en sangre aumentó significativamente ($p < 0.05$), la concentración de proteína total y el número total de células en el líquido de lavado broncoalveolar disminuyeron significativamente ($p < 0.05$), la relación peso húmedo/seco del pulmón disminuyó significativamente ($p < 0.05$), los niveles de factor de necrosis tumoral α e interleucina 1β en tejido pulmonar disminuyeron significativamente ($p < 0.05$), el nivel de superóxido dismutasa en tejido pulmonar aumentó significativamente ($p < 0.05$) y el nivel de malondialdehído en el tejido pulmonar se redujo significativamente ($p < 0.05$). En resumen, el pretratamiento con peiminina puede mitigar el MVLI en ratones al inhibir la reacción inflamatoria y el estrés oxidativo en el tejido pulmonar.

KEY WORDS: lung injury, mechanical ventilation, mice, peiminine.

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