

Therapeutic Effect of Levosimendan Combined with Dobutamine in Patients with Acute Heart Failure

Guanghui ZHANG¹, Hao ZHANG², Wei ZHU¹ & Jing CHEN^{3*}

¹ *Department of Intensive Care Medicine, Tianyou Hospital Affiliated to Wuhan University of Science and Technology, Wuhan 430064, China*

² *Department of Emergency Medicine, Tianyou Hospital Affiliated to Wuhan University of Science and Technology, Wuhan 430064, China*

³ *Department of Pharmacy, Tianyou Hospital Affiliated to Wuhan University of Science and Technology, Wuhan 430064, China*

SUMMARY. The present work investigated the therapeutic effect of levosimendan combined with dobutamine in patients with acute heart failure (AHF) and its influence on myocardial injury, vascular endothelial function and inflammatory response. A total of 68 AHF patients were divided into control and observation groups which were treated with dobutamine and levosimendan combined with dobutamine for seven days, respectively. After treatment, the total effective rate in observation group was significantly higher than control group. Comparing to control group, in observation group, the cardiac function indexes were significantly enhanced ($p < 0.05$), the serum creatine kinase isoenzyme, cardiac troponin I, angiotensin II, endothelin-1, tumor necrosis factor α , interleukin-6, and hypersensitive C-reactive protein levels were significantly decreased, respectively ($p < 0.05$), and the serum nitric oxide level was significantly increased ($p < 0.05$). In conclusion, for treating AHF, levosimendan combined with dobutamine can effectively enhance the cardiac function, alleviate the myocardial injury, improve the vascular endothelial function, and reduce the inflammatory response.

RESUMEN. El presente trabajo investigó el efecto terapéutico de levosimendán combinado con dobutamina en pacientes con insuficiencia cardíaca aguda (ICA) y su influencia sobre la lesión miocárdica, la función endotelial vascular y la respuesta inflamatoria. Un total de 68 pacientes con ICA se dividieron en grupos de control y de observación que fueron tratados con dobutamina y levosimendán combinado con dobutamina durante siete días, respectivamente. Después del tratamiento, la tasa efectiva total en el grupo de observación fue significativamente mayor que la del grupo de control. En comparación con el grupo de control, en el grupo de observación, los índices de función cardíaca mejoraron significativamente ($p < 0,05$), la isoenzima creatina quinasa sérica, la troponina cardíaca I, la angiotensina II, la endotelina-1, el factor de necrosis tumoral α , la interleucina-6 y los pacientes hipersensibles. Los niveles de proteína C reactiva disminuyeron significativamente, respectivamente ($p < 0,05$), y el nivel de óxido nítrico sérico aumentó significativamente ($p < 0,05$). En conclusión, para el tratamiento de la ICA, levosimendán combinado con dobutamina puede mejorar eficazmente la función cardíaca, aliviar la lesión miocárdica, mejorar la función endotelial vascular y reducir la respuesta inflamatoria.

KEY WORDS: acute heart failure, dobutamine, levosimendan, myocardial injury, vascular endothelial.

* Author to whom correspondence should be addressed. *E-mail:* chenjingwh1@126.com