

The aim of the present study is to compare the effects of three crystalloid solutions, such as Normal saline (NS), lactated Ringers (LR) and Plasma-lyte A (PA), on acid-base status and intestine injury in rats subjected to hemorrhagic shock (HS)" Wang et al (2016).

Abstract:

Background: Several kinds of crystalloid solutions have been used in the treatment of hemorrhagic shock. Clinicians are faced with how to select the resuscitation fluids. The aim of the present study is to compare the effects of three crystalloid solutions, such as Normal saline (NS), lactated Ringers (LR) and Plasma-lyte A (PA), on acid-base status and intestine injury in rats subjected to hemorrhagic shock (HS).

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Methods: Thirty Wistar rats were divided into four groups. The sham group had no blood withdrawal. The other groups were subjected to severe hemorrhagic shock and then injected with NS, LR or PA. All treatments were followed with an infusion of Red Blood Cell (RBC) suspension. The mean arterial pressure (MAP) was monitored throughout the experiment. The arterial blood gas, MDA and MPO levels in the small intestine were assayed 120 min after resuscitation.

Results: PA treatment could restore the pH, BE, HCO₃⁻, PaO₂, and PaCO₂. Comparing with Sham group, NS failed to correct the decreased pH, BE and HCO₃⁻ (P < .05), while LR treatment showed the decreased BE and HCO₃⁻ (P < .05), and increased PaO₂ (P < .05). There were no significant differences in MDA among the four groups (P > .05). PA and LR were more effective than NS in decreasing the MPO level in the small intestine (P < .01).

Conclusions: Although the three crystalloid solutions play different roles, PA is better at correcting the acid-base balance and improving intestine injury during HS than NS and LR.

Reference:

Wang, Y., Guo, W., Gao, D., You, G., Wang, B., Chen, G., Zhao, L., Zhao, J. and Zhou, H. (2016) Effects of Plasma-lyte A, lactated Ringers and normal saline on acid-base status and intestine injury in the initial treatment of hemorrhagic shock. *The American Journal of Emergency Medicine*. October 5th. .

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