



We compared the effects of 0.9% NaCl to a less chloride-concentrated fluid, PlasmaLyte® (PL) in targeted fluid resuscitation in a randomized, double-blind controlled study in an experimental model of severe sepsis in rats” Olivier et al (2017).

Abstract

Background: According to international guidelines, volume expansion with crystalloids is the first-line treatment for hemodynamic management in patients with severe sepsis or septic shock. Compared to balanced crystalloids, 0.9% sodium chloride (0.9% NaCl) induces hyperchloremia and metabolic acidosis and may alter renal hemodynamics and function. We compared the effects of 0.9% NaCl to a less chloride-concentrated fluid, PlasmaLyte® (PL) in targeted fluid resuscitation in a randomized, double-blind controlled study in an experimental model of severe sepsis in rats.

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Results: A sepsis with hypotension was induced by cecal ligation and puncture (CLP) in 40 male Wistar rats (20 for each crystalloid). Rats received fluid resuscitation over a period of 200 min for a targeted mean arterial pressure of 90 mm Hg. Animals received similar volumes of 0.9% NaCl or PL. Unlike PL-resuscitated rats, 0.9% NaCl-resuscitated rats

experienced hyperchloremia and metabolic acidosis, whereas systemic hemodynamics, renal hemodynamics and renal function were not significantly different between both groups.

Conclusion: In our model of rats with severe sepsis resuscitated with large amounts of crystalloids, 0.9% NaCl-induced hyperchloremic acidosis, but balanced crystalloid did not improve systemic and renal hemodynamics or renal function.

Full Text

Reference:

Olivier, P-Y., Beloncle, F., Seegers, V., Tabka, M., Renou de La Bourdonnaye, M., Mercat, A., Cales, P., Henrion, D., Radermacher, P., Piquilloud, L., Lerolle, N. and Asfar, P. (2017) Assessment of renal hemodynamic toxicity of fluid challenge with 0.9% NaCl compared to balanced crystalloid (PlasmaLyte®) in a rat model with severe sepsis. June 14th. Annals of Intensive Care. .

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