

To compare the clinical efficacy of lactated Ringer's (LR) and normal saline (NS) in treating patients with septic shock" Mao et al (2018).

Abstract:

Objective: To compare the clinical efficacy of lactated Ringer's (LR) and normal saline (NS) in treating patients with septic shock.

Methods: The clinical data of 198 patients with septic shock who received fluid resuscitation in the Intensive Care Unit of Quzhou People's Hospital from January 2014 to January 2016 were retrospectively analyzed. These patients were divided into NS group (n=100) and LR group (n=98) according to fluids used. The amounts of trial fluid, other liquids, and blood products and the average total fluid volume were recorded. The oxygenation index (PO₂/FiO₂), mean artery pressure (MAP), central venous pressure (CVP), and B-type natriuretic peptide (BNP) before and after treatment as well as the early goal-directed therapy (EGDT) 8 h (EGDT8), EGDT 24 h recovery rate, EGDT recovery time, 28-day mortality rate were compared. Other secondary outcomes including bleeding, allergic reaction, acute kidney injury (AKI), venous blood filtration (RRT) rate, hyperkalemia, and ICU stay were also recorded. The 28-day survival rate was calculated using the Kaplan-Maier method, and the difference in survival rate was compared by log-rank test.

Results: The two groups showed no significant difference in gender, age, body weight, source of admission to ICU, procalcitonin level, source of sepsis, Acute Physiology and Chronic Health Evaluation II score, number of AKI patients, amount of white blood cells, and C-reactive protein level (all P>0.05). The amount of blood products on the first day [(782±357)ml vs. (606±273)ml; t=2.044, P=0.046] and the average total amount of liquid on the first three days [(5470±1078)ml vs. (5092±929) ml; t=2.640, P=0.009] were significantly higher in NS group than in LR group. The amount of trial fluid and the volumes of other fluids were not significantly different (both P>0.05). The PO₂/FiO₂, MAP, CVP, and BNP levels significantly increased after treatment in both groups (all P<0.05); however, they were not significantly different between LR group and NS group at different time points before and after treatment (all P>0.05). The incidences of hyperlactacidemia (86.0% vs. 71.4%, OR: 2.457, 95%CI: 1.202-5.023, P=0.012) and hyperchloremia (25.0% vs. 13.2%, OR: 2.179, 95%CI: 1.041-4.562, P=0.036) were significantly higher in NS group than in LR group. These two groups showed no significant difference in EGDT8, 24 h recovery rate, EGDT recovery time, 28-day mortality rate, AKI, RRT rate, hyperkalemia, and ICU stay (all

$P > 0.05$). Kaplan-Meier survival analysis showed that the 28-day survival rate was not significantly different (χ^2 log-rank=0.012, $P=0.911$).

Conclusion: When liquid resuscitation is applied in patients with septic shock, the use of LR can lower blood transfusion requirement on the first day and total liquid dosage on the first three days (compared with NR), along with lower incidences of hyperlactacidemia and hyperchloremia, although there was no significant difference in the 28-day mortality rate.

Reference:

Mao, X.Q., Lou, B.H. and Wu, D.J. (2018) Efficacy of Lactated Ringer's versus Normal Saline in Treating Patients with Septic Shock. *Zhongguo Yi Xue Ke Xue Yuan Xue Bao.* 40(3), p.349-355.

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