

Lactated Ringer's Vs Normal Saline for Acute Pancreatitis: An Updated Systematic Review and Meta-Analysis

Muhammad Aziz^{1*}, Zohaib Ahmed¹, Simcha Weissman¹, Sami Ghazaleh¹, Azizullah Beran¹, Faisal Kamal¹, Wade Lee-Smith², Ragheb Assaly³, Ali Nawras¹, Stephen J Pandol¹, Stephanie McDonough¹, Douglas G. Adler⁴

¹Division of Gastroenterology and Hepatology, Department of Medicine, The University of Toledo, Toledo, OH 43614

²Department of University Libraries, The University of Toledo, Toledo, OH 43614

³Division of Pulmonology and Critical Care, Department of Medicine, The University of Toledo, Toledo, OH 43614

⁴Director of Therapeutic Endoscopy and Director of Gastroenterology Fellowship Training Program University of Utah, School of Medicine, Salt Lake City, UT 84132

*Corresponding author: Muhammad.Aziz@utoledo.edu

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Introduction: Recent studies have evaluated and compared the efficacy of normal saline (NS) and lactated Ringer's (LR) in reducing the severity of acute pancreatitis (AP) and improving outcomes such as length of stay, the occurrence of the systemic inflammatory response syndrome (SIRS), ICU admission and mortality. We performed an updated systematic review and meta-analysis of the available studies to assess the impact of these fluids on outcomes secondary to AP.

Methods: We systematically searched the following databases: PubMed/Medline, Embase, Cochrane, and Web of Science through February 8th, 2021 to include randomized controlled trials (RCTs) and cohort studies. Random effects model using DerSimonian-Laird approach was employed and risk ratios (RR) and mean difference (MD) with 95% confidence interval (CI) were calculated for binary and continuous outcomes, respectively.

Results: 6 studies (4 RCTs and 2 cohort studies) with 549 (230 in LR and 319 in NS) were included. The overall mortality (RR: 0.73, CI: 0.31-1.69) and SIRS at 24 h (RR: 0.69, CI: 0.32-1.51) was not significantly different. The overall ICU admission was lower in LR group compared to NS group (RR: 0.43, CI: 0.22-0.84). Subgroup analysis of RCTs demonstrated lower length of hospital stay for LR group compared to NS group (MD: 0.77 days, CI: 1.44 -0.09 days).

Conclusion: Our study demonstrated that LR improved outcomes (ICU admission and length of stay) in patients with AP compared to NS. There was no difference in rate of SIRS development and mortality between LR and NS treatments.