

Capsule Summary

Balanced Crystalloids vs Normal Saline in Sepsis: A Metanalysis

- Normal saline is the most widely used crystalloid solution. There is emerging evidence suggesting that balanced crystalloids which have more physiological levels of sodium and chloride may have certain advantages over normal saline, particularly with regard to the development of hypercritical metabolic acidosis
- A recently published meta-analysis compared normal saline and balanced crystalloids in adults with sepsis.

Objective: Conduct a comprehensive systematic review and meta-analysis to include all relevant studies to assess the effect of Balanced Crystalloids vs Normal Saline on different clinical outcomes for adults with sepsis.

Study Methodology:

- A systematic search of PubMed, EMBASE, and Web of Sciences databases through 22 January 2022, was performed for studies that compared Balanced Crystalloids (BC) vs Normal Saline (NS) in adults with sepsis.
- Fifteen studies involving 20,329 patients were included in the analysis.

Study Outcome: Study outcomes included mortality and acute kidney injury (AKI), need for renal replacement therapy (RRT), and ICU length of stay (LOS).

Parameters	N	Findings
Mortality	15 Studies, 20329 patients	Overall mortality rate was lower in the BC group compared to NS group (RR 0.88, 95% CI 0.81–0.96, p = 0.005, I2 = 51%) Subgroup analysis of Randomized Clinical Trials showed no differences between the groups
Acute Kidney Injury	7 studies, 10489 patients	Significantly lower in the BC group compared to NS (RR 0.85, 95% CI 0.77–0.93, p = 0.0006, I2 = 0%)
Renal Replacement Therapy (RRT)	6 studies, 8358 patients	No significant difference in the need for RRT between BC and NS groups (RR 0.91, 95% CI 0.76–1.08, p = 0.28, I2 = 0%)
ICU Length of Stay(LOS)	3 studies, 1546 patients	No significant difference between BC and NS groups with regard to the ICU LOS (MD -0.25 days, 95% CI -3.44, 2.95, p = 0.88, I2 = 98%)

Conclusion:

- Reduced mortality associated with Balanced Crystalloids compared to Normal Saline in patients with Sepsis.
- No significant differences in mortality between the groups when sub-group analysis of RCTs was conducted.
- There was no significant difference in the need for RRT or ICU LOS between BC and NS.
- Pending further data, the current study supports using BC over NS for fluid resuscitation in adults with sepsis.
- Further large-scale RCTs needed to validate the finding

Information Source:

You can access the full article at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8133105/>

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