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The image shows a SecurA catheter with a yellow handle. The handle has 'LIFT' and 'HOLD' labels and the SecurA logo. The catheter is shown inserted into a vein.



Crystalloids were less efficient than colloids at stabilizing resuscitation endpoints; guidance on when to switch is urgently required” Martin and Bassett (2018).

Abstract:

PURPOSE: Guidelines recommend crystalloids for fluid resuscitation in sepsis/shock and switching to albumin in cases where crystalloids are insufficient. We evaluated hemodynamic response to crystalloids/colloids in critically ill adults.

MATERIALS AND METHODS: The primary research question was: “Are crystalloids sufficient for volume replacement in severe indications (intensive care unit /critical illness)?”

Randomized, controlled trials (RCTs) were identified using PubMed and EMBASE, and screened against predefined inclusion/exclusion criteria. Meta-analyses were performed on extracted data.

RESULTS: Fifty-five RCTs (N = 27,036 patients) were eligible. Central venous pressure was significantly lower with crystalloids than with albumin, hydroxyethyl starch (HES), or gelatin (all $p < .001$). Mean arterial pressure was significantly lower with crystalloids vs. albumin (mean difference [MD]: -3.5 mm Hg; $p = .03$) or gelatin (MD: -9.2 mm Hg; $p = .02$). Significantly higher volumes of crystalloids were administered vs. HES (MD: +1775 mL); volume administered was numerically higher vs. albumin (MD: +1985 mL). Compared with the albumin group, cardiac index was significantly lower in the crystalloid group (MD: -0.6 L/min/m², $p < .001$). All mortality and 90-day mortality were significantly lower for crystalloids compared with HES (relative risk 0.91; $p = .009$ and 0.9; $p = .005$, respectively). **CONCLUSIONS:** Crystalloids were less efficient than colloids at stabilizing resuscitation endpoints; guidance on when to switch is urgently required.

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Intravenous fluid resuscitation approaches in intensive care units

Fluid replacement with crystalloids and colloids during bleeding and resuscitation

Fluid therapy and outcomes in 65 German intensive care units

Reference:

Martin, G.S. and Bassett, P. (2018) Crystalloids vs. colloids for fluid resuscitation in the Intensive Care Unit: A systematic review and meta-analysis. *Journal of Critical Care*. 50, p.144-154.

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