



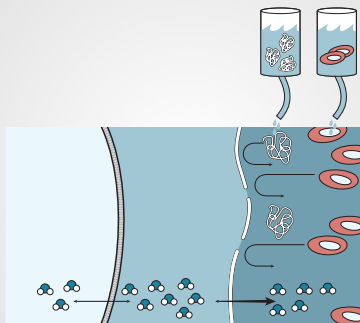
IV fluids

Plasma expanders

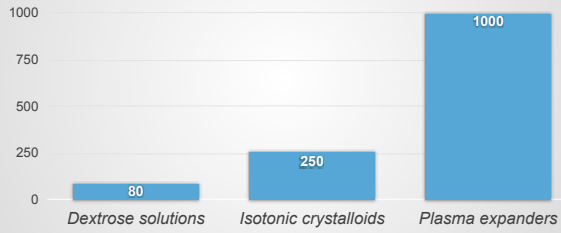
Plasma expanders

- ➔ blood components
 - FFP
 - PRBC
 - platelets
- ➔ Colloids
 - purified albumin
 - Synthetic osmotic agents (hydroxyethyl starch)





Volume remaining in the plasma space



ORIGINAL ARTICLE

A Comparison of Albumin and Saline for Fluid Resuscitation in the Intensive Care Unit

The SAFE Study Investigators*

ABSTRACT

METHODS

We randomly assigned patients who had been admitted to the ICU to receive either 4 percent albumin or normal saline for intravascular-fluid resuscitation during the next 28 days. The primary outcome measure was death from any cause during the 28-day period after randomization.

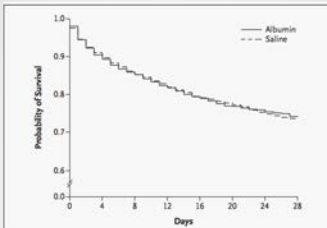


Figure 1. Kaplan-Meier Estimates of the Probability of Survival. P=0.96 for the comparison between patients assigned to receive albumin and those assigned to receive saline.

6,997 patients randomized

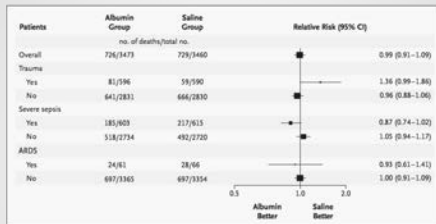


Figure 3. Relative Risk of Death from Any Cause among All the Patients and among the Patients in the Six Predefined Subgroups.
The size of each symbol indicates the relative number of events in the given group. The horizontal bars represent the confidence intervals (CI). ARDS denotes the acute respiratory distress syndrome.

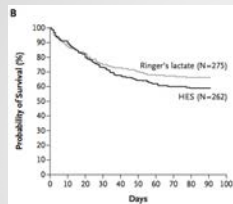
N Engl J Med 2004;350:2247-56.

THE NEW ENGLAND JOURNAL OF MEDICINE

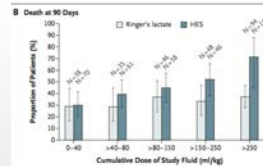
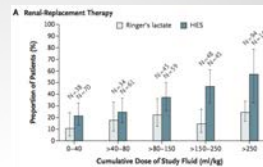
ORIGINAL ARTICLE

Intensive Insulin Therapy and Pentastarch Resuscitation in Severe Sepsis

Frank M. Brunkhorst, M.D., Christoph Engel, M.D., Frank Bloos, M.D., Ph.D., Andreas Meier-Hellmann, M.D., Max Ragaller, M.D., Norbert Weiler, M.D., Onnen Moerer, M.D., Matthias Gruendling, M.D., Michael Oppert, M.D., Stefan Grund, M.D., Derk Olthoff, M.D., Ulrich Jaschinski, M.D., Stefan John, M.D., Rolf Rossaint, M.D., Tobias Welte, M.D., Martin Schaefer, M.D., Peter Kern, M.D., Evelyn Kuhnt, M.Sc., Michael Kuhntopf, M.D., Christiane Hartog, M.D., Charles Natanson, M.D., Markus Loeffler, M.D., Ph.D., and Konrad Reinhart, M.D., for the German Competence Network Sepsis (SepNet)



After the first planned interim analysis, our trial was suspended because of increased rates of renal failure and death at 90 days in the group receiving HES. Adverse effects of HES on renal function have been reported in patients who have undergone renal transplantation and in critically ill patients.^{10,11} Schortgen et al.¹² reported adverse renal effects associated with a starch solution that had a higher degree of molar substitution (0.6) than that used in our study (0.5). Other

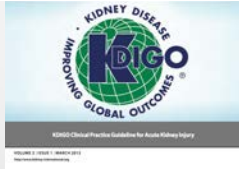


Section 3: Prevention and Treatment of AKI

- 3.1.1: In the absence of hemorrhagic shock, we suggest using **isotonic crystalloids rather than colloids (albumin or starches)** as initial management for expansion of intravascular volume in patients at risk for AKI or with AKI. (2B)
- 3.1.2: We recommend the use of vasopressors in conjunction with fluids in patients with vasomotor shock with, or at risk for, AKI. (1C)

8

Kidney International Supplements (2012) 2: 6-12



MAJOR ARTICLE

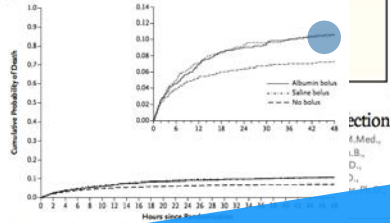
Randomized Trial of Volume Expansion

Mortality. Mortality was significantly more common among children assigned to receive saline (11 [18%] of 61 children) than among children assigned to receive albumin (2 [3.6%] of 56; relative risk, 5.1; 95% CI, 1.2–22.8; $P = .013$). Most deaths occurred among children with severe acidosis (8 [31%] of 25 saline recipients vs 2 [9%] of 22 albumin recipients; $P = .06$). After

117 patients

... precipitating cerebral edema than crystalloid. In an ... compared the safety of resuscitation with albumin to saline in Kenyan ... We randomly assigned children with severe malaria and metabolic acidosis (base deficit, >8 mmol/

A. Mortality at 48 Hours



3,141 patients

Mort

Kathr
CI
R
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BACKGRO
The m

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E.Med.
I.B.
D.
D.

Hills, Kenya
(EMR)-West,
Imme, KUI,
R.B.J. Med-
ical Tropical
Paediatrics.

**No bolus was better
than a saline or
albumin bolus**

