Study compares risk of death of fluid replacement therapies for critically ill patients

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Djillali Annane, M.D., Ph.D., of Raymond Poincare Hospital, Garches, France, and colleagues conducted a study to compare the effects of 2 types of intravenous fluids on survival for critically ill patients in an intensive care unit.

Thousands of patients in intensive care units (ICUs) throughout the world are treated every day with intravenous fluids, mainly to restore effective blood volume and perfusion of organs. Fluid therapy includes a broad variety of products that are categorized as crystalloids and colloids : crystalloids are salts; colloids are salts and gelatin, starch or protein. Compared with crystalloids, colloid solutions expand blood volume and last longer. However, colloids may increase illness and death in critically ill patients and many physicians considered crystalloids the best fluid therapy in this population, according to background information in the article.

The trial included 2,857 ICU patients who required fluid resuscitation for sepsis or trauma, or hypovolemic (decreased blood volume) shock for patients without sepsis or trauma at 57 intensive care units in France, Belgium, North Africa, and Canada. Recruitment into the trial started in February 2003 and ended in August 2012 with follow-up until November 2012. Patients were randomly assigned to crystalloids (n = 1,443) or colloids (n = 1,414) for all fluid intervention (except fluid maintenance) throughout their ICU stay. The primary outcome was

death within 28 days.

The study reports no difference in outcomes between groups; there were 359 deaths (25.4 percent) among patients treated with colloids vs. 390 deaths (27.0 percent) among patients treated with crystalloids. At 90 days, there were 434 deaths (30.7 percent) among patients treated with colloids vs. 493 deaths (34.2 percent) among patients treated with crystalloids.

"In conclusion, among ICU patients with hypovolemia, the use of colloids compared with crystalloids did not result in a significant difference in 28-day mortality. Although 90-day mortality was lower among patients receiving colloids, this finding should be considered exploratory and requires further study before reaching conclusions about efficacy," the authors write.

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