CRITICAL CARE

Mortality risk in the CRISTAL trial

In critically ill patients, fluid resuscitation using colloids is not associated with increased mortality as compared to using crystalloids, according to recent results from the CRISTAL randomized trial, published by researchers at the University of Versailles, France.

Previous studies have highlighted concerns about colloid solutions, mainly those containing hydroxyethyl starches, which have been suggested to increase the risk of death or acute kidney injury. This factor, together with their reduced cost, has made crystalloids the preferred choice for fluid therapy.

The CRISTAL open-label trial included 2,857 patients with hypovolaemic shock (recruited from 57 intensive care units in France, Belgium, Canada, Algeria and Tunisia over a 9-year period) who were randomly assigned to receive fluid resuscitation with either colloids or crystalloids. Within each treatment group, investigators used whichever fluid solutions were available at their institution.

The primary end point—mortality at 28 days—was not significantly different

between the two groups. Additionally, no evidence of an increased risk of renal replacement therapy was detected in the colloids group. Although the researchers acknowledge several limitations of their trial, notably the long recruitment period and the broad range of solutions used, they assert that the trial does accurately reflect routine clinical practice. Further, the large sample size and inclusion of patients from three continents bolsters the generalizability of the trial results.

Interestingly, fewer deaths occurred in the colloids group at 90 days (a secondary end point) than in the crystalloids group. “[However,] this finding should be considered exploratory and requires further study before reaching conclusions about efficacy,” the researchers caution in their report.

David Holmes

Original article Annane, D. *et al.* Effects of fluid resuscitation with colloids vs crystalloids on mortality in critically ill patients presenting with hypovolemic shock: the CRISTAL randomized trial. *JAMA* doi:10.1001/jama.2013.280502

NPG