

COLLOID TREATMENT IN SEPSIS PATIENTS IN INTENSIVE CARE – USE OF ALBUMIN VS HYDROXYETHYL STARCH (HES) IS COST-EFFECTIVE IN A DECISION ANALYSIS MODEL

Farrugia A1, Balboni A1, Cassar J2, Kimber MC1.1Plasma Protein Therapeutics Association, Annapolis, MD, United States of America 2 Faculty of Health, University of Canberra, Canberra, ACT, Australia

Background:

Sepsis is a major source of mortality and morbidity in intensive care patients, leading to significant hospital costs. Recent data from clinical trials (Intensive Care Med 2011; 37:86–96) and meta-analysis (Crit Care Med 2011; 39:386–391) suggests that the administration of albumin in sepsis may be beneficial hydroxyethyl starch

(HES), a synthetic colloid less costly than albumin on a unit basis has been proposed as an alternative. However, adverse effects on renal function [1] and an increased risk of bleeding [2] may play a role in the overall cost-effectiveness of this drug. In addition, a considerable part of the evidence base for its use has recently been retracted from the literature because of scientific fraud [3], leaving its efficacy under doubt.

Aims:

We have assessed the cost-effectiveness of albumin and HES in a cohort of septic patients in intensive care.

Methods:

A decision analysis model was constructed using commercial software (TreeAge Software Inc, MA, USA). Published data was extracted from the peer-reviewed literature for the costs, probabilities of outcomes and effectiveness measured as life years (LYs) saved for a hypothetical cohort of sepsis patients drawn from the United States' Healthcare Cost and Utilization Project (HCUP).

Results:

Sepsis has a substantial effect on post-discharge mortality using both modalities. Albumin dominated HES in this model, providing increased efficacy at lower overall costs: Treatment LYs gained Overall medical costs Albumin 4.35 \$65098. HES 2.73 \$68224.

Conclusions:

Overall medical costs for treating septic patients in intensive care are high and life expectancy in patients after discharge is lower than in the general population. Fluid treatment with albumin is more cost-effective than with HES. Analysis of sub-groups on the basis of age and disease severity may further differentiate these two modalities.

[1] Dart AB, Mutter TC, Ruth CA, Taback SP. Hydroxyethyl starch (HES) vs other fluid therapies: effects on kidney function. Cochrane Database of Systematic Reviews 2010;(1): Art. No.: CD007594. DOI: 10.1002/14651858.CD007594.pub2. [2] Knutson JE, Deering JA, Hall FW, Nuttall GA, Schroeder DR, White RD, Mullany CJ Does intraoperative hetastarch administration increase blood loss and transfusion requirements after cardiac surgery? Anesth Analg 2000;90(4):801–7. [3] Shafer SL. Letter to our readers. On <http://www.anesthesia-analgesia.org/site/misc/> 25.February.2011.Notice.pdf