"This study aimed to examine the elemental content of precipitates isolated from infused BPN bags and determine the main physicochemical interactions occurring in these bags" Foinard et al (2015).

Reference:

Foinard, A., Perez, M., Barthélémy, C., Lannoy, D., Flamein, F., Storme, L., Addad, A., Bout, M-A., Décaudin, B. and Odou, P. (2015) In Vitro Assessment of Interaction Between Amino Acids and Copper in Neonatal Parenteral Nutrition. Journal of Parenteral & Enteral Nutrition. February 23rd. .

Interaction between amino acids and copper in neonatal parenteral nutrition http://ctt.ec/F4lm7+ @ivteam #ivteam

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Abstract

Background: The repeated blackening of in-line filters has been observed during the infusion of parenteral nutrition 2-in-1 mixtures (binary parenteral nutrition) delivered in a neonatal intensive care unit. This study aimed to examine the elemental content of precipitates isolated from infused BPN bags and determine the main physicochemical interactions occurring in these bags.

Materials and Methods: The infusion of BPN mixtures was simulated in vitro following hospital practices. Filter membranes were examined by scanning electron microscopy and energy dispersion spectroscopy (EDS). Amino acid (AA) profiles were obtained from BPN mixtures to determine the concentrations of each AA.

Results: Analyzed filter membranes revealed conglomerates of particles on filter surfaces. An EDS analysis generated spectra from isolated particles, identifying copper and sulfur as the major chemical elements. AA mean concentrations were relatively close to the expected value for each AA, except cysteine. Cysteine concentrations were very significantly lower than the expected values.

Conclusion: A specific interaction was identified between 1 AA (cysteine) and a trace element (copper) in our BPN mixtures.

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