Abstract:

BACKGROUND: Co-infusion of parenteral nutrition (PN) and other drugs increases the risk of the interaction between drug and PN admixtures that can cause embolization of small blood vessels, resulting in potentially fatal consequences, including pulmonary embolism, or liver and retina vascular damage. The present study aimed to determine the compatibility between ciprofloxacin (CF) and eighteen compounded PN admixtures in order to assess the possibility of their co-administration via Y-sites.

METHODS: CF and PN admixtures were mixed at two volume ratios (1:1 and 2:1) and potential interactions were examined using visual inspection, and measurements of pH, osmolality particle size, and zeta potential. The analyses were conducted immediately after sample preparation and after four hours of storage.

RESULTS: The compatibility tests showed that the addition of the CF to the PN admixtures did not cause any color change or sign of destabilization in the fat emulsion. However, precipitation was observed in formulations containing higher CF concentrations and, in the case of lower CF concentrations, in formulations containing magnesium and calcium ions at a molar ratio of 2:1.

CONCLUSIONS: The administration of CF and PN admixtures via the Y-site should be avoided or performed only with PN admixtures for which compatibility has been confirmed and the CF concentration in samples is 1 mg/mL at a molar ratio of magnesium to calcium ions of 1:1.

Reference:

Gostyńska, A., Stawny, M., Dettlaff, K. and Jelińska, A. (2019) The Interactions between Ciprofloxacin and Parenteral Nutrition Admixtures. Pharmaceutics. 12(1), p.E27. doi: 10.3390/pharmaceutics12010027.

Full Text