

# Compatibility of Intravenous Medications With Parenteral Nutrition: In Vitro Evaluation.

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## Abstract

**Background and Aim:** Hospitalized patients requiring parenteral nutrition (PN) often need to receive intravenous (IV) medications as well. Y-site administration is occasionally necessary, but physicochemical incompatibilities can occur between the medications and PN. The aim of the present study was to assess the physical compatibility between 25 frequently coadministered IV medications and a commercially available ready-to-use total PN.

**Methods:** PN (NuTRIflex Lipid Special; BJBraun Medical AG, Sempach, Switzerland) and medications were mixed in 1:1 (v/v) proportions, and the stability was assessed at the time of mixing and after 1 and 4 hours. The stability of lipid emulsion was observed by microscopic investigation, visual inspection, dynamic laser light scattering, and laser light obscuration. The binary admixtures of PN (without lipid emulsion) and medications were used to detect discoloration, visibly detectable precipitates, and subvisual particles.

**Results:** Two of 25 medications were incompatible with the lipid emulsion (serum albumin 20% and tropisetron), 2 showed signs of degradation (discoloration) over time (esomeprazole and pantoprazole), and 1 precipitated at high concentrations (5-fluorouracil). The other 20 medications were considered compatible when administered by Y-site.

**Conclusion:** The present study validated the compatibility of 1 commercially available PN and 20 medications. These results offer new solutions to support the implementation of complex therapeutic schemes in practice, when coadministration via Y-site cannot be avoided.

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