Abstract:

Purpose: Critically ill patients with septic shock often receive multiple intravenous medications, necessitating either the placement of separate lines for medication administration or administration of medications concurrently through a Y-site connector only where compatibility has been demonstrated. The purpose of this study was to examine the physical compatibility of hydrocortisone infusions and select intravenous medications through a simulated Y-site.

Methods: The medications tested for simulated Y-site physical compatibility with hydrocortisone included acetaminophen, albumin, cefepime, ciprofloxacin, cisatracurium, doripenem, epinephrine, esomeprazole, ibuprofen, levofloxacin, levothyroxine, meropenem, and norepinephrine. Hydrocortisone in solution with 0.9% sodium chloride injection was combined with an equivalent volume of solutions of each test drug at maximum or commercially available concentrations used clinically in intensive care units, as appropriate. The samples were evaluated using turbidimetric measurements and examined visually against light and dark backgrounds to determine physical compatibility. Observations and analyses were completed over a one-hour period at 15-minute intervals beginning immediately after mixing. Each test was performed in triplicate.

Results: All study medications demonstrated visual and/or turbidimetric physical compatibility when combined with hydrocortisone in a simulated Y-site infusion. No medications demonstrated a visual physical incompatibility when combined with hydrocortisone.

Conclusion: Acetaminophen, albumin, cefepime, ciprofloxacin, cisatracurium, doripenem, epinephrine, esomeprazole, ibuprofen, levofloxacin, levothyroxine, meropenem, and norepinephrine exhibited physical compatibility with hydrocortisone via Y-site infusion.

Reference:

Foushee, J. A., Meredith, P., Fox, L. M. and Wilder, A. G. (2020) Y-site physical compatibility of hydrocortisone continuous infusions with admixtures used in critically ill patients. American Journal of Health-System Pharmacy. June 15th. https://doi.org/10.1093/ajhp/zxaa118.