Stability of IV admixture of metoclopramide, diphenhydramine and dexamethasone

“The chemical stability of a sterile admixture containing metoclopramide 1.6 mg/mL, diphenhydramine hydrochloride 2 mg/mL, and dexamethasone sodium phosphate 0.16 mg/mL in 0.9% sodium chloride injection was evaluated” Kintzel et al (2014).

Reference:

Abstract:
Purpose: The chemical stability of a sterile admixture containing metoclopramide 1.6 mg/mL, diphenhydramine hydrochloride 2 mg/mL, and dexamethasone sodium phosphate 0.16 mg/mL in 0.9% sodium chloride injection was evaluated.

Methods: Triplicate samples were prepared and stored at room temperature without light protection for a total of 48 hours. Aliquots from each sample were tested for chemical stability immediately after preparation and at 1, 4, 8, 24, and 48 hours using liquid chromatography-tandem mass spectrometry (LC-MS/MS) analysis. Metoclopramide, diphenhydramine hydrochloride, and dexamethasone sodium phosphate were selectively monitored using multiple-reaction monitoring. Samples were diluted differently for quantitation using three individual LC-MS/MS methods. To determine the drug concentration of the three compounds in the samples, three calibration curves were constructed by plotting the peak area or the peak area ratio versus the concentration of the calibration standards of each tested compound. Apixaban was used as an internal standard. Linearity of the calibration curve was evaluated by the correlation coefficient r2.

Results: Constituents of the admixture of metoclopramide 1.6 mg/mL, diphenhydramine hydrochloride 2 mg/mL, and dexamethasone sodium phosphate 0.16 mg/mL in 0.9% sodium chloride injection retained more than 90% of their initial concentrations over 48 hours of storage at room temperature without protection from light. The observed variability in concentrations of these three compounds was within the limits of assay variability.
Conclusion: An i.v. admixture containing metoclopramide 1.6 mg/mL, diphenhydramine hydrochloride 2 mg/mL, and dexamethasone sodium phosphate 0.16 mg/mL in 0.9% sodium chloride injection was chemically stable for 48 hours when stored at room temperature without light protection.

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