



The compatibility of vancomycin and piperacillin-tazobactam in concentrations typically used in extended-infusion dosing schemes was evaluated” O’Donnell et al (2016).

Abstract:

Purpose: The compatibility of vancomycin and piperacillin-tazobactam in concentrations typically used in extended-infusion dosing schemes was evaluated.

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Methods: Piperacillin-tazobactam was reconstituted and diluted to concentrations of 33.75, 45, 50, 60, 67.5, 80, and 90 mg/mL. Vancomycin was diluted to concentrations of 4-8, 10, and 12 mg/mL. The resultant admixtures were visually observed after preparation against black and white backgrounds each hour between hours 1 through 4 and after 24 hours. Frozen products of each medication and brand-name Zosyn powder for reconstitution also were studied. Each combination of products and concentrations was tested for precipitation using simulated Y-site administration. Absorbance and microscopic analyses were performed to discern less perceptible incompatibilities in combinations that did not result in visual precipitation. Changes in absorbance were evaluated using two-way repeated-measures analysis of variance with post hoc Bonferroni corrections.

Results: No tested concentrations of piperacillin-tazobactam showed precipitations with vancomycin up to concentrations of 7 mg/mL. Piperacillin-tazobactam 80-90 mg/mL formed reversible precipitation with vancomycin 8 mg/mL. All tested concentrations of piperacillin-tazobactam formed a reversible precipitate with vancomycin 10 mg/mL. Irreversible precipitation was noted with all combinations of piperacillin-tazobactam and vancomycin 12 mg/mL. No significant changes in absorbance analyses were identified for all tested piperacillin-tazobactam concentrations and vancomycin 4-10 mg/mL compared with 0.9% sodium chloride injection ($p > 0.05$). Similar results were observed using frozen preparations and brand-name Zosyn.

Conclusion: Visual, microscopic, and absorbance analyses showed no evidence of incompatibility when piperacillin-tazobactam 33.75-90 mg/mL was combined with vancomycin ≤ 7 mg/mL. Reversible and irreversible precipitates formed when piperacillin-tazobactam was combined with vancomycin ≥ 8 mg/mL.

Reference:

O'Donnell, J.N., Venkatesan, N., Manek, M., Rhodes, N.J. and Scheetz, M.H. (2016) Visual and absorbance analyses of admixtures containing vancomycin and piperacillin-tazobactam at commonly used concentrations. *American Journal of Health-System Pharmacy*. 73(4), p.241-246.

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