
Abstract:

Purpose: The stability of i.v. acetaminophen beyond the manufacturer-recommended usage limit of six hours for opened vials was evaluated.

Methods: Intravenous acetaminophen (10 mg/mL) was obtained. Three identical samples of 100 mg (10 mL in a 10-mL syringe), 250 mg (25 mL in a 30-mL syringe), 500 mg (50 mL in a 60-mL syringe), 250 mg (25 mL in the original vial), and 900 mg (90 mL in original vial) were prepared. A 0.5-mL volume of each sample was withdrawn, diluted with mobile phase to an expected concentration of 50 ?g/mL, and assayed in duplicate using high-performance liquid chromatography immediately after preparation and at 24, 48, 72, and 84 hours. The samples were visually inspected for any change in color, and pH was assessed at each time of analysis. The stability of the solutions was determined by calculating the percentage of the initial acetaminophen concentration remaining at each test hour. Stability was defined as the retention of at least 90% of the initial acetaminophen concentration.

Results: At least 99% of the initial concentration of acetaminophen remained in the original vials and polypropylene syringes throughout the 84-hour study period. There were no detectable changes in color, pH, visible microbial growth, or visible drug precipitation.
Conclusion: Intravenous acetaminophen (10 mg/mL) was physically and chemically stable in a range of volumes for up to 84 hours in the opened vials and in polypropylene syringes at room temperature.
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