

Compatibility and Osmolarity of Inhaled N-Acetylcysteine Nebulizing Solution with Fenoterol and Ipratropium

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Abstract

PURPOSE: The compatibility, pH, and osmolality of N-acetylcysteine (NAC) nebulizing solution in the presence of ipratropium bromide or fenoterol hydrobromide were studied. **METHODS:** Portions (400 µL) of each mixture were sampled immediately upon mixing and one, two, three, four, five, six, and seven hours after mixing and assayed by high-performance liquid chromatography. Osmolality was measured by sampling 100 µL from the filling cup at a five-minute interval during nebulization and by the freezing-point-depression method. **RESULTS:** Adding NAC solution to fenoterol solution raised the pH from 3.20 to 7.90 and the osmolality to a mean \pm -S.D. of 1400.67 \pm 4.51 mOsm/kg. Fenoterol concentrations decreased to 93.71% and NAC concentrations to 92.54% of initial concentrations after seven hours. Mixing ipratropium with NAC solution raised the pH from 3.74 to 7.95 and the osmolality to a mean \pm -S.D. of 1413 \pm 11.79 mOsm/kg. The initial ipratropium concentration declined 7.39% and 10.91% one and two hours after mixing with NAC solution, respectively. **CONCLUSION:** NAC and ipratropium were stable in nebulizing solution within one hour of mixing. NAC and fenoterol were compatible for at least seven hours.