COMPATIBILITY AND STABILITY OF HYOSCINE N-BUTYL BROMIDE AND FUROSEMIDE ADMIXTURES FOR USE IN PALLIATIVE CARE

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Background: In order to avoid separate injections, admixtures of drugs are frequently used in palliative care settings. There are different factors that can influence the compatibility and stability of the mixture: drug type, concentration, solvent, container, temperature and light. There are some mixtures of drugs with proven stability, but there is lack of evidence about the stability and compatibility of the combination of hyoscine N-butyl bromide and furosemide.

Purpose: To evaluate the compatibility and stability of three admixtures of hyoscine N-butyl bromide and furosemide at two different temperatures (25ºC and 37ºC). The concentrations of the admixtures are: 2.0 mg/ml-2.0 mg/ml; 1.0 mg/ml-0.6 mg/ml; 0.6 mg/ml-0.6 mg/ml, in NaCl 0.9% stored in elastomeric infusors protected from light.

Material and method: The samples were prepared and diluted in NaCl 0.9% in elastomeric infusor in triplicate to obtain six different conditions of concentration and/or temperature of storage (concentration : 2.0 mg/ml - 2.0 mg/ml, 1.0 mg/ml – 0.6 mg/ml and 0.6 mg/ml – 0.6 mg/ml of hyoscine N-butyl bromide and furosemide respectively; temperature of storage 25ºC and 37ºC).
The concentration of each constituent drug into different mixtures was periodically determined using a HPLC-UV method. The drugs were chromatographed on a C_{18} reverse phase column; the mobile phase was acetonitrile-water 80:20 (v/v); flow rate 1.5 ml/min. Hyoscine N-butyl bromide and furosemide concentrations were determined at 220 nm by interpolation from the calibration curves prepared at (0, 1, 2, 3, 7, 11, 15) days from the standards. Statgraphics centurion XVI program has been used to data treatment.

Results and discussion: The stability of the admixtures diluted in NaCl 0.9% are as follow: hyoscine N-butyl bromide -furosemide (2.0 mg/ml-2.0 mg/ml) is stable (retained >95% of their initial concentration) two days at 25ºC and 37ºC; (1.0 mg/ml-0.6 mg/ml) is stable eight days at 25ºC and two days at 37ºC; (0.6 mg/ml-0.6 mg/ml) is stable twelve days at 25ºC and three days at 37ºC.

Conclusion: The admixture of hyoscine N-butyl bromide and furosemide in NaCl 0.9% in elastomeric infusor can be safely used in palliative care for at least two days. Lower concentration of the admixture can be prepared in advance and stored at room temperature, but the infusion cannot be longer than tree days.