



Preparation of drug solutions used with electronic syringe infusion pumps plays a crucial role in the delivery of an accurate drug concentration. Is there a correlation between drug concentrations during syringe pump infusion and preparation protocols” Garrigue et al (2016).

Abstract:

OBJECTIVE: Preparation of drug solutions used with electronic syringe infusion pumps plays a crucial role in the delivery of an accurate drug concentration. Is there a correlation between drug concentrations during syringe pump infusion and preparation protocols?

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METHOD: Norepinephrine, insulin, and sufentanil were prepared in 3 different ways: (1) the drug was taken from the vial, then the solvent was added followed by an air bubble, and mixing was performed by turning the syringe top-to-bottom in a 180° shaking movement 5 consecutive times; (2) the drug was taken from the vial, then the solvent was added and not mixed; and (3) the solvent was taken from a stock solution, then the drug was added and not mixed. Concentrations of drugs were determined at different times during administration by

reverse-phase high-performance liquid chromatography with ultraviolet detection. All analyses were performed in triplicate and were based on measurement of peak areas.

RESULTS: With no shaking of the syringe, the concentration of the injected drugs varies widely. In any case, mixing of the syringe contents by turning the syringe in a top-to-bottom 180° shaking movement 5 times with an air bubble would ensure administration of the drug at a constant concentration.

CONCLUSIONS: Without mixing, the concentrations of all drug solutions varied widely when administered via an electronic syringe infusion pump. Mixing syringe contents should be made part of the compulsory curriculum for administering medications at all levels of medical education.

Reference:

Garrigue, B., Dehu, Y., Girault, F., Figadère, B., Leblanc, K., Briole, N., Capitani, G.A., Lagadec, S. and Laborne, F.X. (2016) Preparing Drugs for Infusion Via Syringe Pump: A Key Step to Ensure Homogeneous Concentration. *Critical Care Nurse*. 36(4), p.36-44.

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