We report here the sorption levels of diazepam onto various types of tubes in administration sets" Jin et al (2016).

Abstract:

Diazepam is highly sorbed to the plastic materials of administration sets for intravenous infusion. This can be detrimental as it should be delivered to the patient at the administered amount for efficacy and safety.

ReTweet if useful... Drug absorption in PVC and non-PVC-based intravenous administration sets http://ctt.ec/83gDj+ @ivteam #ivteam

Click To Tweet

We report here the sorption levels of diazepam onto various types of tubes in administration sets. The tube materials of the administration sets included polyvinylchloride (PVC) and the non-PVC materials such as polyurethane (PU) and polyolefin (PO) were used. Two conditions of diazepam administered in preclinical and clinical settings were tested using an infusion pump. Injections were prepared by diluting diazepam to 20mg/500mL and 10mg/100mL in 5% dextrose. Diluted diazepam solutions at the concentrations of 10mg/100mL and 20mg/500mL were separately delivered through 1m of tubing at 1mL/min for 1.05 and 4.05h. Samples were analyzed using a high-performance liquid chromatography method with UV detection. PVC- and PU-based tubes showed higher sorption of diazepam than did PO-based tubes. PO-based tubes delivered more than 90% of the administered diazepam. The results showed that PO-based tubes of administration sets have a promising potential to deliver hydrophobic drugs like diazepam with minimal sorption levels. In addition, the tube materials in administration sets may be one of the critical factors to ensure drug efficacy and safety.

Reference:

Jin ,S.E., You, S., Jeon, S. and Hwang, S.J. (2016) Diazepam sorption to PVC- and non-PVC-based tubes in administration sets with quantitative determination using a high-performance liquid chromatographic method. International Journal of Pharmaceutics. April 15th. .

doi: 10.1016/j.ijpharm.2016.04.040.

Thank you to our partners for supporting IVTEAM