



Certain attachment techniques for infusion sets can adversely prolong drug dispensing time” Umemura et al (2018).

Abstract:

BACKGROUND: Infusion sets designed for peristaltic finger smart pumps (PFSPs) are necessary for the pumps’ accurate handling. We previously found that medication dispensing is occasionally incomplete following the calculated infusion time when using certain combinations of PFSPs and infusion sets at a Japanese hospital. Thus, in this study, we investigated the cause of this observed delay by determining the effect of infusion set attachment technique on dispensing time using a combination of three kinds of PFSPs and five kinds of polyvinyl chloride (PVC) and polybutadiene (PB) infusion sets.

METHODS: PFSPs with their exclusive infusion sets were used. The PVC and PB infusion sets were either not stretched or stretched to 1-3 cm and attached to the PFSP’s liquid delivery system. PFSP dispensing rates were set at 25-400 mL/h. The primary outcome was the time required to dispense 100 mL of saline in a volumetric flask.

RESULTS: The complete dispensing time correlated with the input time for all equipment combinations when the infusion sets were not stretched before attachment to the PFSP ($R^2 = 0.9998-1.0000$). When stretched, the complete dispensing time was longer than the input time ($P < 0.01-0.05$, analysis of variance with Tukey-Kramer multiple comparisons). The maximum dispensing time extension ratio for the PVC and PB infusion sets was 141.8% and

113.0%, respectively.

CONCLUSION: Certain attachment techniques for infusion sets can adversely prolong drug dispensing time. As such, pharmacists should provide medical staff with information about the devices used to administer drugs, as well as about the drugs themselves.

Full Text

Reference:

Umemura, M., Maegawa, K., Arai, D., Shigeno, K. and Wakiya, Y. (2018) Influence of technique used to attach the infusion set to peristaltic finger smart-pumps on dispensing time: an experimental study. *Journal of Pharmaceutical Health Care and Sciences*. April 16th.

doi: 10.1186/s40780-018-0104-4.

