



To develop a new syringe pump for clinical use, the functions of the pump must meet certain international standards. Various safety and efficacy tests must be performed on the syringe pump, as stipulated by these standards, and an approval must be received from the approving agency based on such test results” Jung et al (2016).

Abstract:

BACKGROUND: In dental intravenous sedation, continuous intravenous infusion of a low-dose drug requires an infusion pump such as a syringe pump. To develop a new syringe pump for clinical use, the functions of the pump must meet certain international standards. Various safety and efficacy tests must be performed on the syringe pump, as stipulated by these standards, and an approval must be received from the approving agency based on such test results.

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METHODS: The authors of the present study developed a novel syringe pump and performed efficacy evaluation by testing its infusion speed at 1 and 25 ml/h, and infusion performance testing at 2 and 24 h. Moreover, performance evaluation was conducted by comparing the

novel pump to an existing pump with the infusion speed varied from 1 to 5 ml/h.

RESULTS: In the efficacy testing on the newly developed syringe pump, infusion with the infusion speed initially set to 1 ml/h resulted in infusion speeds of 1.00 and 0.99 ml/h in the 2- and 24-h assessment, respectively. Changing the infusion speed setting to 25 ml/h resulted in an infusion speed of 25.09 and 23.92 ml/h in the 2- and 24-h assessment, respectively. These results show no significant differences when compared with other commercially available pumps.

CONCLUSIONS: The efficacy testing of the newly developed syringe pump showed the accuracy to be within tolerance. Based on these findings, we believe that the newly developed syringe pump is suitable for clinical use.

Reference:

Jung, B., Seo, K.S., Kwon, S.J., Lee, K., Hong, S., Seo, H., Kim, G.Y., Park, G.M., Jeong, J. and Seo, S. (2016) Efficacy evaluation of syringe pump developed for continuous drug infusion. *Journal of Dental Anesthesia and Pain Medicine*. 16(4), p.303-307.

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