



**The 13<sup>th</sup> Congress  
of  
Asian Society for Pediatric Research  
6 - 8 October 2017  
Hong Kong College of Paediatricians**



Abstract 190

**Intravenous delivery dynamics of highly viscous fluid for pediatric patients: Comparison between a newly developed cylinder pump and a traditional syringe pump**

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**Background and Aims:** In pediatric care, intravenous drugs are preferably administered using infusion devices. Prompt and accurate drug delivery is an important clinical safety issue when using infusion device. The problem of delay and variability in the speed of intravenous drug delivery presents a more serious problem in pediatric patients, especially when the drug is viscous or thick fluid. Recently, a cylinder pump, delivers predetermined volume according to the movement of the cylinder, has been introduced in critical care. As yet, its performance in pediatric care has not been investigated. Thus, we compare the performance of cylinder pump with a traditional and widely used syringe pump in aspect of drug delivery performance using highly viscous, thick intravenous fluid in a range of pediatric dose.

**Methods:** Traditional syringe pump (PerfusorSpace™, Bbrn) and a recently developed cylinder pump (AnyfusionV100™, Meinttech) were compared. To simulate the delivery of highly viscous, thick intravenous drug to a pediatric patient of 3 Kg, 15% mannitol with flow rate of 10.0 ml/hr was delivered. The delivered fluid was collected within a collecting burette with 0.1 ml graduations. The pump's output in each minute and the volume lag (expected delivered volume – actually delivered volume; expressed as percentile) was calculated. Start-up delay and time lag in completion (set completion time of 60 min – actual completion time) were recorded. Statistic comparisons between the two pumps were made with Mann-Whitney test.

**Conclusions:** The recently developed cylinder pump shows shorter start up delay and more accurate drug delivery in terms of completion time lag. The difference between the pre-set volume and actual delivered volume was smaller in cylinder pump than syringe pump throughout the experiment. Thus, the cylinder pump can be adopted in pediatric care with better safety profile when compared to the syringe pump.

**Categories**

Non-Clinical,Others