

PEER-REVIEW REPORT

Name of journal: World Journal of Clinical Pediatrics

Manuscript NO: 56318

Title: Does carrier fluid reduce low flow drug infusion error from syringe size?

Reviewer's code: 02440467

Position: Editorial Board

Academic degree: MD

Professional title: Academic Research, Adjunct Professor, Doctor

Reviewer's Country/Territory: Italy

Author's Country/Territory: United States

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Reviewer chosen by: AI Technique

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|---------------------------------|---|
| Scientific quality | <input type="checkbox"/> Grade A: Excellent <input checked="" type="checkbox"/> Grade B: Very good <input type="checkbox"/> Grade C: Good <input type="checkbox"/> Grade D: Fair <input type="checkbox"/> Grade E: Do not publish |
| Language quality | <input checked="" type="checkbox"/> Grade A: Priority publishing <input type="checkbox"/> Grade B: Minor language polishing <input type="checkbox"/> Grade C: A great deal of language polishing <input type="checkbox"/> Grade D: Rejection |
| Conclusion | <input checked="" type="checkbox"/> Accept (High priority) <input type="checkbox"/> Accept (General priority) <input type="checkbox"/> Minor revision <input type="checkbox"/> Major revision <input type="checkbox"/> Rejection |
| Re-review | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| Peer-reviewer statements | Peer-Review: <input checked="" type="checkbox"/> Anonymous <input type="checkbox"/> Onymous Conflicts-of-Interest: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |

SPECIFIC COMMENTS TO AUTHORS



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Dear Editor thanks for inviting to review this article entitled “Does Carrier Fluid Reduce Low Flow Drug Infusion Error from Syringe Size? The Authors in this study, created a model to test the carrier fluid accuracy infusion and flow continuity of low flow drug from large syringes compared to the smaller ones. They concluded that despite carrier fluid, larger syringes were associated with less overall drug and fluid volumes delivered, worse flow continuity, and other flow problems in low flow infusions when compared to smaller syringe sizes. The Authors conclusions were that carrier fluid should not be used to compensate for errors introduced by syringe size in critical low flow drug infusions and that syringe size should be matched to the rate of infusion. In this very nice study, the Authors arise some concern about the fact that drug infusion system above all in pediatric population can be affected by an important component of the infusion system. Previously M. Lovitch published a mathematical model to quantify these interactions. In this study the Authors are giving some experimental evidence for that. In clinical practice a precise control of the delivery system of some drugs such as epinephrine, phenylephrine, nitroglycerin, sodium nitroprusside is essential to achieve desired therapeutic end-points and to avoid harmful fluctuations in the patient’s clinical condition. The basic component of an infusion system, a quite complex issue of biofluids dynamics, includes a reservoir, a device to control the rate of drug egress from the reservoir, a tubing system connecting the rate control device to the fourth component, which is the vascular access catheter. A fifth important component is a mainline or carrier flow. In this case, the drug infusion joins the mainline or carrier flow at a junction point upstream from the patient. Medication error accounts for a significant portion of preventable patient morbidity. The findings of this study are consistent with an important role of the syringe size. My only question is how these observations can be transferred to the real world of the clinical practice of a paediatric ICU. In other words we should avoid large syringes for the infusion system and try to use only the smaller ones?



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