
Do We Need A Better Anesthesia Intravenous Infusion Set?

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Abstract

Anesthesiologists occasionally use both micro-drip and macro-drip IV infusion sets in a single patient in clinical situations in which administration of IV fluids is undesirable or contraindicated, but where the ability to fluid resuscitate must be immediately available. We propose a new anesthesia intravenous infusion set (Dual Drip Chamber IV (c) set) which combines the fine control of the IV flow of a micro-drip IV infusion set, with the rapid infusion capability of a macro-drip IV infusion set.

INFUSION SET

Gravity-driven, macro-drip intravenous (IV) infusion sets are commonly used by anesthesiologists. The IV fluid flow rate is controlled by a roller clamp and monitored by observation of the rate of drop formation in the drip chamber (i.e., 15 drops/ml). The disadvantage of these macro-drip intravenous infusion sets, however, is the possibility of inadvertent over-administration of fluids. In contrast, micro-drip IV infusion sets (i.e., 60 drops/ml) can be used to better control the flow rate, but they do not allow rapid administration of IV fluids.

A survey conducted at the October 1998 ASA Annual Meeting in Orlando, FL (115 consecutive anesthesiologists who attended the scientific exhibits were asked to complete a questionnaire on their use of micro- and macro-drip infusion sets), demonstrated that the preferences of anesthesiologists with regards to choice of macro or micro-drip infusions are highly variable. For instance, the anesthesiologists were asked how they would use these infusion sets in two specific clinical scenarios:

1. A 70 year old man with a history of diabetes

mellitus and CHF undergoing transmetatarsal amputation under spinal anesthesia,

2. A 50 year old man with chronic renal failure undergoing AV graft implantation under axillary block.

For the patient in the first clinical scenario, 24% of anesthesiologists preferred using micro-drip, 33% macro-drip and 39% would use both sets.

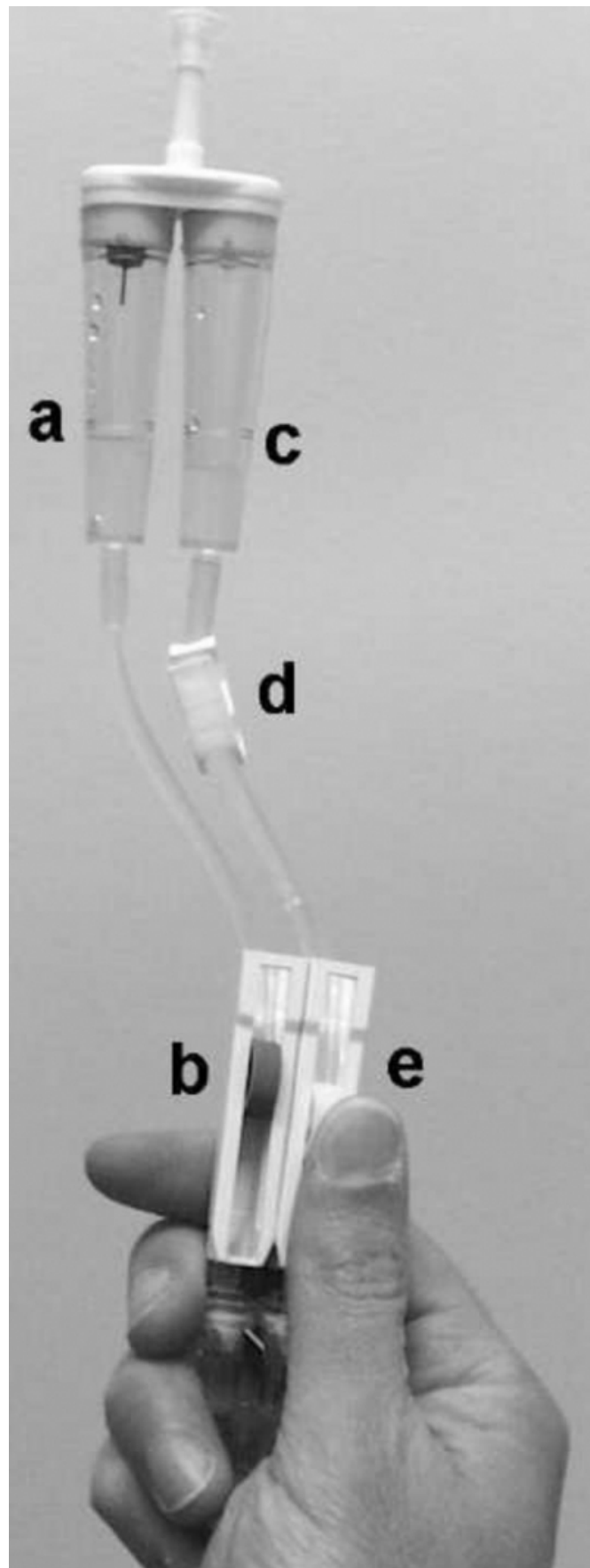
For the patient in the second scenario, 55% of anesthesiologists would choose micro-drip, 9% macro-drip and 36% would use both intravenous infusion sets.

Additionally, most anesthesiologists (81%) would use both sets in clinical situations in which administration of IV fluids is undesirable or contraindicated, but where the ability to fluid resuscitate must be immediately available.

At the 1998 ASA Meeting we proposed a new anesthesia intravenous infusion set (Dual Drip Chamber IV (c) set) which combines the control of a micro-drip IV infusion set with the rapid infusion capability of a macro-drip IV.

Figure 1

Figure 1: AnesFlow - Dual Drip Infusion(c) IV set



The flow through the Micro-drip path (60 drops/ml) (a) is

adjusted to a desired rate using a roller clamp (b). When higher flow rates or fluid boluses are required, the flow through the macro-drip chamber (c) is activated by releasing the control clamp (d) and adjusting the roller clamp in the micro-drip path (e). ‡ Patent pending

In the same questionnaire we asked the anesthesiologists to also rate possible advantages of this new IV infusion set. For both patient-examples, at least 80% of the anesthesiologists felt that the Dual Drip Chamber IV(c) set offered advantages over both the micro- and macro-drip IV infusion sets. Most anesthesiologists were of the opinion that the new infusion set is

- overall more convenient to use (98%),
- easier to titrate and monitor IV flow rate (94%),
- and may help prevent inadvertent fluid overload (95%).

Based on these responses, we believe that the Dual Drip Chamber IV(c) set would be advantageous to both patients and anesthesiologists.

References

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