Wasted Ventilation

To the Editor.—In a recent issue, Cote et al.\(^1\) reported on "Wasted Ventilation Measured In Vitro with Eight Anesthetic Circuits with and without Inline Humidification." In agreement with previous work, they showed that the amount of wasted ventilation was related to the product of inflation pressure needed and the total capacitance of the circuit.

The clinical situation has an additional level of complexity, particularly when small infants are ventilated at high rates. Using mathematic modeling techniques, we have shown that gas flow at the infant airway lags that generated by the ventilator.\(^2\) For that reason, close to 100% of the ventilation may be lost or wasted during the beginning of the breath. This may not be apparent at the relatively low rates used by Cote, and thus, their data may, if anything, underestimate this potentially serious clinical problem. This time-dependent increase in "inefficiency" may be minimized by employing very high flows during the beginning of inspiration or, alternately, by the use of an end inspiratory plateau.

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REFERENCES


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Vasoactive Drug Infusion: Making Life Easier

To the Editor.—In a recent issue, Dr. Webb suggests a new dilution method of various vasoactive drugs for ease of calculation of doses given by infusion pumps.\(^1\) As he acknowledges in his report, it is odd to prepare drugs in these concentrations. Further, one also may waste large amounts of expensive drugs using his method of dilution.

The formula: \( C = \frac{30 \times D}{A} \) will make life easier, where C is pump setting in ml/h, A is any drug in mg diluted in 500 ml diluent, and D is dose of drugs in \( \mu g/\)min. If one wishes to start with 2 \( \mu g/\)min epinephrine (4 mg in 500 ml), the pump setting is \( C = 30 \times \frac{2}{4} = 15 \) ml/h. If a patient requires 45 ml/h nitroglycerine (50 mg in 500 ml), the patient is receiving \( D = \frac{45}{30} \times 50 = 75 \) \( \mu g/\)min of nitroglycerin. All one has to remember is a simple formula to set the pump properly or to learn the dose needed for the desired effect.

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