

USE OF A LARGE BORE CRICOTHYROIDOTOMY CATHETER FOR EMERGENCY AIRWAY MANAGEMENT.

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Conventional 14 gauge IV angiocatheters have been used for emergency airway management to provide jet ventilation. We evaluated a large bore (9 French I.D. with 13 French O.D. and length 6 cm) catheter (LBC) for emergency airway management. The device allows for rapid insertion percutaneously, with a built in dilator and 19 gauge needle, and can be used with either a jet ventilator, standard Mapleson D circuit, or ambu bag. The reinforced polyvinylchloride catheter, with a built in curve, minimizes kinking and allows easy passage of a standard guide wire to simplify retrograde intubation.

After approval of the animal ethics committee, 9 mongrel dogs were given general anesthesia. Blood gas measurements, transtracheal pressures, and plethysmographic data were recorded. The results of the blood gas data are shown in the table. The LBC, when used with either a Mapleson D or jet, was not significantly different from a 14 g cricothyroidotomy catheter, used with a jet ventilator, in its ability to oxygenate or ventilate for 15 minutes. The LBC did offer improved ventilation ($P < 0.05$) when used with a jet when compared to its use with a Mapleson D circuit.

	LBC with Mapleson D	LBC with jet	14 gauge IV with jet
PaO ₂	435.0 ± 165.3	503.3 ± 139.0	349.1 ± 131.2
PaCO ₂	56.2 ± 12.5*	39.2 ± 14.1*	45.5 ± 19.1

*mean ± standard deviation (mmHg), * $P < 0.05$

In addition, the LBC was easily maneuvered from a caudad to cephalad direction allowing passage of a guide wire to facilitate retrograde intubation of the trachea with a standard endotracheal tube.

In conclusion, the large bore cricothyroidotomy catheter offers an advantage over a traditional 14 gauge angiocatheter in its improved mechanical structure, ease of insertion, and ability to be used with either a jet ventilator, Mapleson D or ambu bag. This system, when used with either an ambu bag or Mapleson D, should be readily applicable for emergency applications in humans when jet ventilation may not be immediately available.

References

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