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HFOT: beyond treatment of hypoxemia

High flow oxygen therapy (HOT) is a non-invasive respiratory support modality that provides a humidified and heated air-oxygen mixture to the patient via specific nasal prongs, at flow rates up to 2 L/kg/min. HOT is carried out using an air/oxygen blender, active humidifier, single heated tube, and specific nasal cannula. Those specific nasal cannulas should ideally be 50% or less the diameter of the nares.

High flow rates generate low levels of PEEP, recruit end-expiratory lung volume, decrease the work of breathing and physiologic dead space by flushing expiratory CO₂ from the upper airways. This technique requires low level of sedation and has a good tolerance in dogs. All these advantages has placed HOT as a good oxygen delivery technique to treat moderate to severe hypoxemia in dogs. However, HOT should not replace or delay mechanical ventilation in case of severe respiratory distress.

This lecture will review some physiological aspect of HOT delivery, and develop new fields of research and application of HOT, as use of HOT in brachycephalic dog during the recovery period of anaesthesia, and bronchoscopy in dogs and cats. It will also review the use of clinically applicable index to predict success or failure of HOT.

Ventilator waveforms: what can I learn from them?

Mechanical ventilation is more and more implemented in ICU patients and can be lifesaving. The initial settings are usually adjusted based on response to empiric trial. Evaluation of the ventilator waveforms, in combination with arterial blood gas values and clinical evaluation will allow the clinician to monitor evolution of the disease, identify accuracy of ventilator settings and detect patient-ventilator dyssynchrony.

This lecture will focus on ventilator waveform interpretation to recognise ventilation mode, evolution of respiratory disease and patient dyssynchrony.