AnaConDa and inhaled anaesthetics in COVID-19 patients with ARDS

- Scientific and technical information -

This poster has been created as a response to the increased number of clinical and technical questions regarding the use of AnaConDa and inhaled anaesthetics in patients with COVID-19 and ARDS.

- Inhaled anaesthetics in ARDS have been associated with improved oxygenation and reduced cytokine release, experimentally as well as in ARDS patients.[1-7]
- Inhaled anaesthetic use in critically ill patients has been associated with short wake-up times and fast cognitive recovery[8,9], which potentially may contribute to faster discharge from the ICU after extubation.

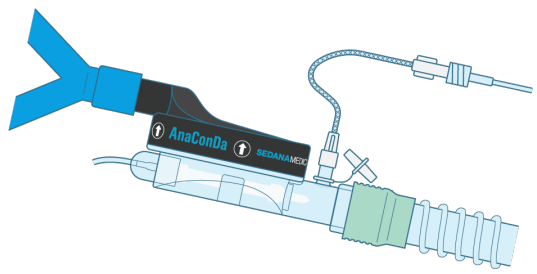
ARDS, cytokines and other indicators - Effects of inhaled anaesthetics

EFFECTS OF INHALED ANAESTHETICS ON ARDS		General findings in ARDS (Sweeney 2016)[1]	Findings in Corona virus infection and ARDS (Huang 2020)[2]	Effects of Inhaled Anaesthetics (isoflurane and/or sevoflurane) vs Intravenous Anaesthetics (controls)				
				Voigtsberger 2009[3] (rat model)	Ferrando 2013[4] (pig model)	Strosing 2016[5] (mouse model)	Kellner 2017[6] (rat model)	Jabaudon 2017[7] (human)
Pro-inflammatory cytokines	TNF-alpha	↑	↑	↓	↓	NA	NA	↓
	IL-1 beta	↑	↑	↓	↓	↓	NA	NS
	IL-6	↑	NA	↓	↓	NA	↓	↓
	IL-8	↑	↑	NA	↓	NA	NA	↓
	IL-10	↑	↑	NA	NA	NA	NS	NA
	MCP-I	↑	↑	↓	NA	NA	NS	NA
	CINC-I	↑	NA	↓	NA	NA	↓	NA
Other markers of lung injury	White blood cell count in alveoli	↑	NA	↓	↓	↓	↓	NA
	Lung fluid permeability/edema	↑	NA	↓	↓	NA	↓	NA
	Alveolar histological disruption	↑	NA	Maintained	NA	Maintained	NA	NA
	S-RAGE	↑	NA	NA	NA	NA	NA	↓
	Oxygenation	↓	↓	↑	↑	↑	↑	↑

ARDS: Acute Respiratory Distress Syndrome; NA: Not assessed; NS: No significant difference

Bacterial/viral filter of the AnaConDa

The virus filtration capacity of the AnaConDa is >99.9% for 27 micron (nm) particles, less than one quarter of the size of the SARS-CoV-2 virus (120-160 micron), implying very low risk for SARS-CoV-2 virus passing the AnaConDa.



Routine change of the AnaConDa

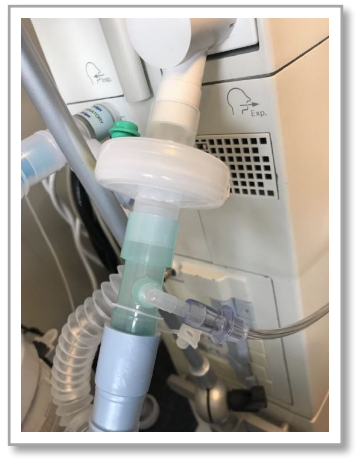
COVID-19 specific precautions during changes of the AnaConDa are the same as for HME changes.

Gas sampling and gas analysers

During AnaConDa use, exhaled air is sampled to the anaesthetic gas analyser from the patient side and is thus not filtered. Most gas monitors however have viral filters in the water trap, with different degrees of virus filtering capacity.

Management of waste gas from the gas analyser

Some ICU´s have introduced an additional filter, connected to the expiratory port of the breathing circuit, to protect the ventilator for exhaled virus entry. The use of such additional filters needs to be verified by the ventilator manufacturer. It is possible to return the waste gas from the gas analyser in the expiratory side of the breathing circuit, before the additional virus filter, by using the standard bypass connector (normally connected to the FlurAbsorb).



For additional question, please contact **medinfo@sedanamedical.com** For additional information about inhaled anaesthetic and AnaConDa please visit our website **www.sedanamedical.com**

References: 1. Sweeney RM. Lancet 2016; 388: 2416–2430. 2. Huang C et al. Lancet Published Online January 24, 2020. 3. Voigtsberger S et al. Anesthesiology 2009; 111:1238–1241. 4. Ferrando C et al. Eur J Anaesthesiol 2013;30:455–463. 5. Strosing KM et al. Anesth Analg. 2016;123:143-151. 6. Kellner P et al. Anesth Analg. 2017;124:194–203. 7. Jabaudon M et al. Am J Respir Crit Care Med. 2017;195:792–800 8. Sackey P et al. Crit Care Med. 2004; 32(11):2241-46. 9. Mesnil M et al. Intensive Care Med. 2011; 37(6):933-41.

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