

DEVICE FOR SELECTIVELY REGIONALIZING THE VENTILATION OF LUNGS BY EXTRATHORACIC NEGATIVE PRESSURE

A non-invasive device for selectively regionalizing ventilation of the lungs, intended to apply a negative pressure to a posterolateral portion of a patient's thoracic wall. Said device comprises a rigid or semi-rigid shell.

ERG\NEO

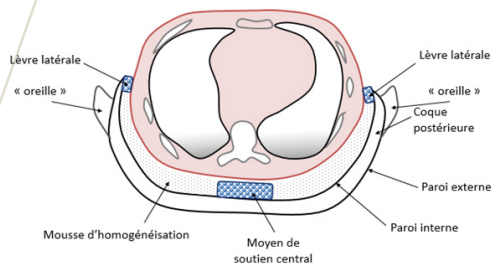
L'AVENIR EST FAIT D'AUDACE

PRESENTATION

60% of patients admitted to intensive care are ventilated by mechanical ventilation to ensure stability and survival. These patients suffer from lesions induced by various pathologies. Lesions located in the alveoli are not evenly distributed, especially in the less compliant posterior lobes.

Today, no technical solution allows a re-homogenization of this ventilation. The research team develops «VacuoVent», a device in the form of a bespoke rigid or semi-rigid thoracic shell allowing the application of an extra-thoracic negative pressure on the thoracic wall in front of the damaged lung.

This device allows a more homogeneous distribution of ventilation, and is currently being evaluated on cadavers. Next step: the clinical POC.



Acute Respiratory Distress Syndrome (ARDS) - Respiratory failure
Extrathoracic negative pressure - Increased oxygenation performance
Homogeneous ventilation distribution

APPLICATIONS

- Acute Respiratory Distress Syndrome (ARDS)
- Respiratory failure

COMPETITIVE ADVANTAGES

- Increased ventilation oxygenation performance
- Reduction of damage induced by mechanical ventilation
- Reduced duration of mechanical ventilation
- Increased patient survival rate
- Reduced ventilation costs

INTELLECTUAL PROPERTY

Patent filed (WO2020/0178521, Priority 03.2019)

International ext 03.2020. Covers US, EP.

DEVELOPMENT PHASE

- ✓ 2 prototypes developed to date
- ✓ Validation of the cadaveric model (collaboration with the University of Quebec in progress on the 2nd prototype (bespoke thoracic shell))
- ✓ Clinical POC (20 patients) in definition

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PUBLICATIONS

Papazian L, Aubron C, Brochard L, Chiche JD, Combes A, Dreyfuss D, Forel JM, Guérin C, Jaber S, Mekontso-Dessap A, Mercat A, Richard JC, Roux D, Vieillard-Baron A, Faure H. Formal guidelines: management of acute respiratory distress syndrome. *Ann Intensive Care*. 2019 Jun 13;9(1):69. doi: 10.1186/s13613-019-0540-9. PMID: 31197492; PMCID: PMC6565761.