



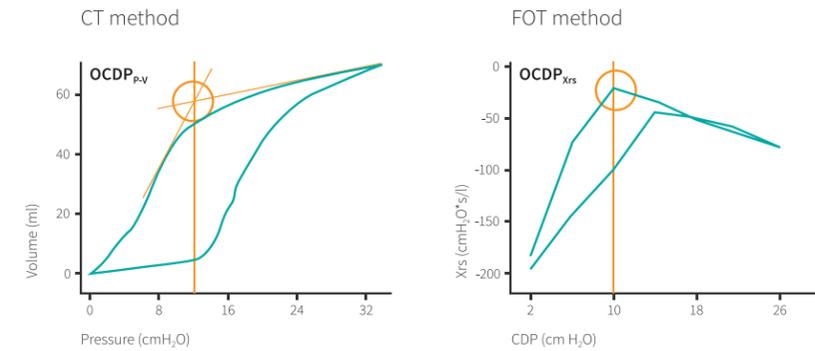
vyaire™
MEDICAL



FOT (Forced Oscillation Technique)
Intelligent lung recruitment from the very start

The challenge of optimal lung recruitment

Because of its importance to the protection and preservation of lung architecture, strategies for optimizing lung volume are critical – especially in preterm newborns. Usually, CPAP, PEEP and MAP are adjusted according to oxygenation, both in conventional modes and during High-Frequency Oscillatory Ventilation (HFOV). But oxygen saturation (SpO_2 or pO_2) may be an imperfect guide for MAP or PEEP titration: there remains a risk that PEEP-induced over-distension and intra-tidal recruitment/derecruitment go unnoticed.



FOT has been validated in comparison with other sophisticated methods, including CT Scan.

Assessment of Dynamic Mechanical Properties of the Respiratory System During High-Frequency Oscillatory Ventilation¹



An exclusive, patented option for the VYAIRE fabian

The patented Forced Oscillation Technique (FOT) is a non-invasive, protective and easy method that allows the clinician to assess an optimally recruited lung. During a recruitment manoeuvre FOT determines the optimal reactance Xrs by sending a small and well defined pressure oscillation into the airway opening, and subsequently measures the flow response of the respiratory system. The reactance Xrs is a very precise measure of how the lung reacts to the pressure pulse. By setting the optimal CPAP, PEEP and MAP level for the individual patient, FOT greatly reduces mechanical stress to the lungs, and brings down ventilation costs.



For the first time, FOT is available for use at the bedside – even for premature infants.



FOT technology is distinctive for the high accuracy of its Pressure and Flow measurements, guaranteed by the flow sensor.

Patented lung protection

FOT was developed by Prof. Raffaele Dellacà and his team at Politecnico Milano, one of the most prestigious international medical engineering universities. The groundbreaking new technology has been validated in cooperation with top clinical NICU/ICU departments over a ten-year period.

Minimizing lung injury

FOT minimizes gas trapping, overdistension, and atelectasis, leading to a more protective ventilation strategy compared to an oxygenation-based approach.

Direct feedback from the lung

FOT allows the clinicians to assess the optimal mean airway pressure by measuring respiratory system reactance Xrs , and tailors protective HFOV or CMV ventilation support to the individual patient.

Measurement without interruption

FOT measures Reactance Xrs accurately during HFOV and Conventional modes, without the need to disconnect the patient from the ventilator or connect expensive additional devices; it also significantly reduces the number of X-ray procedures required.

Saving time and costs

As a simple assisted procedure, FOT allows the clinician to easily adjust the pressure settings and therefore optimise workflows. FOT patients are well prepared for subsequent PRICO treatment (*Predictive Intelligent Control of Oxygenation*) and can usually be discharged earlier from NICU or PICU.



REFERENCES

- 1 Raffaele L. Dellacà, PhD; Emanuela Zannin, PhD; Maria L. Ventura, MD; Giulio Sancini; Antonio Pedotti; Paolo Tagliabue, MD; Giuseppe Miserocchi, MD. www.ccmjournal.org, November 2013 • Volume 41 • Number 11

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