Clinical Experience
+ Technical Competence

Sophie

SPO₂C inside

The innovative Ventilation System for Neonatology

+ SpO$_2$-Controller "SPOC"
  controlled Oxygen Saturation
  automatic FiO$_2$ Adjustment
  adaptive Increase of Ventilation
+ Synchronized, non-invasive Ventilation
  through external Respiration Sensor
+ Integrated Respiratory Gas Humidification
+ High Frequency Oscillation

Sophie The flexible Neonatology Ventilation System

The requirements for sensitive ventilation units in neonatology are growing continuously. To meet those requirements, Fritz Stephan GmbH has developed the SOPHIE ventilation system based on state-of-the-art ventilation technology. By using SOPHIE, the individual ventilation strategy for the premature and newborn infant can be implemented easily and reliably. Modern trigger technology permits flexible synchronization of invasive and non-invasive ventilation. With SPOC, Fritz Stephan GmbH offers an adaptive controller SpO_2 controller which, for the first time, incorporates additional non-invasive ventilation into oxygen saturation control strategy.

Oxygen Saturation Control SPOC

In cooperation with Ulm University Hospital/Germany, Fritz Stephan GmbH has developed an automatic SpO_2 control system for stabilizing oxygen saturation (SpO_2). By combining the existing pulse oximetry of your clinic with SOPHIE, double measurement can be avoided.

How does SPOC react to desaturation?
+ under NIV, the synchronized mechanical ventilation is intensified and helps to positively influence oxygen uptake (VO_2).
+ Increase of FiO_2 is not uniform, previous and current events are taken into account.
+ In case of hyperoxia SPOC reduces FiO_2 to below 25% within a very short time.

SPOC operates independently of the selected ventilation form.

SPOC helps to:
+ prevent hyperoxia, to reduce oxidative stress
+ prevent hypoxia, to avoid hemorrhage and damage to brain tissue
+ reduce SpO_2 fluctuation
+ increase the period within the SpO_2 target range

Ventilation forms
Easy accelerated change between all established, conventional and pressure controlled ventilation forms is possible with just a single menu selection.
Also included is the volume guarantee feature, which controls respiratory pressure of the subsequent inspiration corresponding to the previously measured expiratory tidal volume.

High Frequency Oscillation HFOV
SOPHIE combines High Frequency Oscillation and conventional ventilation forms in one device. HFOV can be activated immediately without replacing the patient tube by the push of just a single button.
The application of an integrated, active respiratory humidifier does not create any additional compressible volumes which may affect HFOV performance.

Optimum respiratory gas conditioning
The integrated active respiratory humidification system supplies the patient by nebulizing optimally warmed and humidified respiratory gas.
The intelligent control system prevents the formation of condensate in the heated, temperature controlled patient tubes. SOPHIE thus conditions respiratory gas independently of auxiliary devices.

Non-invasive Ventilation (NIV)
NIV allows lung protective ventilation strategies thus reducing the occurrence of air leak syndromes and BPD. NIPPV minimizes both the risk of respiratory failure after extubation and the frequency of reintubation significantly. By using an external respiration sensor, patient abdominal movements are converted to a stable, responsive (<30ms) trigger signal. This synchronized non-invasive ventilation (SnIPPV) increases effectiveness and reduces reintubation rates.

Intuitive Operation Concept
Relevant ventilation parameters can easily be adjusted to the patient requirements prior to commencing ventilation. Effective monitoring allows safe supervision at all times.
Seperate adjustment of relevant parameters during ventilation is simplified by clearly assigned buttons.