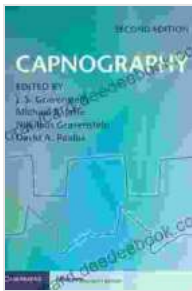


Capnography: A Comprehensive Guide for Clinicians

Capnography is a non-invasive monitoring technique that measures the partial pressure of carbon dioxide (PCO₂) in the exhaled breath. It is a valuable tool for assessing respiratory function and detecting changes in ventilation. Capnography can be used in a variety of settings, including critical care, anesthesia, and emergency medicine.



Capnography (Cambridge Medicine (Hardcover))

by Steve Gotkin

★★★★☆ 4 out of 5

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Principles of Capnography

Capnography is based on the principle that carbon dioxide is produced as a byproduct of cellular metabolism. When we exhale, a small amount of carbon dioxide is released into the breath. The PCO₂ in the exhaled breath is a reflection of the PCO₂ in the blood.

Capnography is typically performed using a nasal cannula or a face mask. The cannula or mask is placed over the nose or mouth, and the patient is

asked to breathe normally. The exhaled breath is then passed through a capnograph, which measures the PCO₂.

Techniques of Capnography

There are two main types of capnography: mainstream and sidestream. Mainstream capnography measures the PCO₂ in the main airway, while sidestream capnography measures the PCO₂ in a sample of exhaled breath.

Mainstream capnography is more accurate than sidestream capnography, but it is also more invasive. Sidestream capnography is less invasive, but it can be less accurate, especially in patients with low tidal volumes.

Clinical Applications of Capnography

Capnography has a variety of clinical applications, including:

- * Assessing respiratory function
- * Detecting changes in ventilation
- * Monitoring patients during anesthesia
- * Managing patients with acute respiratory distress syndrome (ARDS)
- * Evaluating patients with chronic obstructive pulmonary disease (COPD)
- * Assessing patients with sleep apnea

Interpretation of Capnography

The interpretation of capnography is based on the shape of the capnographic waveform. The normal capnographic waveform is a smooth, triangular curve with three distinct phases:

- * The inspiratory phase is the first phase of the waveform. During this phase, the PCO₂ in the exhaled breath is low.
- * The expiratory phase is the

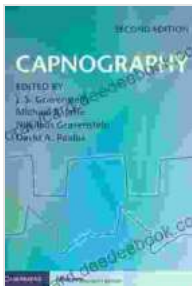
second phase of the waveform. During this phase, the PCO₂ in the exhaled breath rises as carbon dioxide is released from the lungs. * The alveolar plateau is the third phase of the waveform. During this phase, the PCO₂ in the exhaled breath reaches a plateau. The alveolar plateau represents the PCO₂ in the alveoli.

Changes in the shape of the capnographic waveform can indicate changes in ventilation. For example, a flattened waveform may indicate hypoventilation, while a peaked waveform may indicate hyperventilation.

Capnography is a valuable tool for assessing respiratory function and detecting changes in ventilation. It is a non-invasive monitoring technique that can be used in a variety of settings. The interpretation of capnography is based on the shape of the capnographic waveform.

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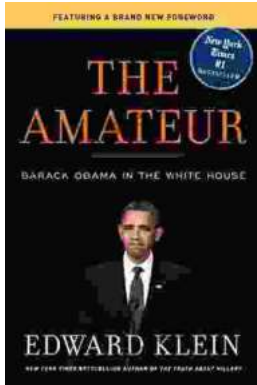
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