**Capnography Case Study**

**Patient Information**

The patient is a 28 y/o female with a chief complaint of difficulty breathing. She has no previous medical history and the only medication that she is taking is birth control pills. Her initial vital signs are BP 110/60, HR 128, RR 30 and O₂ saturation 97%. Her breath sounds are clear to auscultation bilaterally.

**Treatment**

- Oxygen via nasal cannula
- Cardiac monitor
- Pulse oximetry
- Capnography

What assessment information does the LIFEPAK® monitor provide?

The patient is in sinus tachycardia with HR of 120-130. The capnography shows hyperventilation with a respiratory rate of 30 and ETCO₂ of 25 mm Hg; waveforms are normal and boxlike. This level of ETCO₂ is consistent with the noted hyperventilation and the normal boxlike waveforms confirm the absence of bronchospasm. Your initial clinical impressions based on your assessment include anxiety or, although less likely, should include a pulmonary embolus due to the risk factor of the birth control pills. The low ETCO₂ reading could be the result of anxiety induced hyperventilation or could be an early sign of shock from the possible pulmonary embolus since decreases in ETCO₂ often precede other signs of shock. You assess for other early signs of shock including prolonged capillary refill or decreased pulse pressure. The patient’s capillary refill is brisk and her BP remains 110/60 which is a normal pulse pressure. Based on these findings, although you have not ruled out the possibility of pulmonary embolus and still encourage the patient to be transported for further evaluation, you decide to proceed with the clinical impression of anxiety.

**Treatment**

- Continued oxygen administration via nasal cannula
- Use of the capnography as a biofeedback technique (Explain to the patient that the waveforms at the bottom of the monitor screen represent her breathing rate and ask her to concentrate on slowing the frequency of the waveforms.)

What does the LIFEPAK® monitor now show?

The patient has now slowed her respiratory rate to 20 and her heart rate has also decreased to 90. Her ETCO₂ has increased slightly to 27 and the waveforms still have a normal boxlike shape. She is feeling much better but agrees to transport for further evaluation.

**Conclusion**

Monitoring capnography has proved beneficial for this patient by:

- Assisting in the selection of the clinical impression of anxiety
- Assisting the patient in slowing her respiratory rate by biofeedback
- Determining that additional treatment modalities are not needed at this time

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