ETCO₂ Monitoring in Cardiac Arrest

WHY THE CHANGE IN PRACTICE AT LOYOLA?
- ETCO₂ value reflects quality of CPR and Return Of Spontaneous Circulation (ROSC).
- The American Heart Association has recommended use of ETCO₂ monitoring during resuscitation since 2010.

BENEFITS OF MONITORING ETCO₂ DURING CARDIAC ARREST:
- Identify proper placement of an endotracheal tube
- Reflect effectiveness of chest compressions
- Indicates Return of Spontaneous Circulation (ROSC), even before pulse is palpable

QUICK FACTS ABOUT ETCO₂ IN CARDIAC ARREST:
High-quality chest compressions restore blood flow, and allows the flow of CO₂ from the body to be exhaled by the lungs.

In cardiac arrest, body tissues continue to produce CO₂, but this is not circulated to the lungs. The CO₂ that is already present in the lungs is quickly removed by ventilations provided during CPR. When high quality chest compressions circulate the blood from the body tissues to the lungs, ETCO₂ increases. When spontaneous circulation resumes, even more CO₂ is circulated to the lungs, resulting in abrupt, sustained increase in ETCO₂ levels.

- ETCO₂ <10 means little blood is being circulated — providers must improve quality of compressions
- ETCO₂ between 12.5 – 25 indicates effective compressions
- ETCO₂ trending downward may indicate fatigue of the person performing compressions
- Abrupt, sustained increase in ETCO₂ ≥ 40 indicates ROSC
  - Increase in ETCO₂ can be detected before pulse can be palpated, and can indicate ROSC without having to pause compressions to check for a pulse
- ETCO₂ levels are proportional to amount of blood flow restored by chest compressions or ROSC

USE OF ETCO₂ USING NEW ZOLL DEFIBRILLATOR
- The ZOLL defibrillators can monitor ETCO₂ during code situations when patients are intubated
- The sensor is placed over the ETCO₂ adaptor tubing, which is placed on the artificial airway in the most proximal position possible, on either Tracheostomy or Endotracheal tube

LIMITATIONS OF ETCO₂ MONITORING IN CARDIAC ARREST
In general, conditions causing marked V:Q shunting such as pulmonary fibrosis, ARDS, Pulmonary Embolism, may have a blunted response.

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