

## عنوان مقاله:

The Diagnostic Value of End-tidal Carbon Dioxide (EtCO<sub>2</sub>) and Alveolar Dead Space (AVDS) in Patients with (Suspected Pulmonary Thrombo-embolism (PTE

## محل انتشار:

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## خلاصه مقاله:

**Introduction:** Capnography, is an easy, fast and practical method which its application in the diagnosis of Pulmonary Thromboendarterectomy (PTE) has recently been studied. This study aimed to assess the diagnostic value of end-tidal CO<sub>2</sub> (ETCO<sub>2</sub>) and the alveolar dead space (AVDS) in the diagnosis of patients suspected to PTE who have been referred to the emergency department. **Materials and Methods:** This cross-sectional study was conducted during one year in the emergency department of Ghaem Hospital on patients with suspected PTE who scored less than 4 for the Wells' criteria during the initial evaluation. After excluding other differential diagnoses, all patients underwent CT pulmonary angiography (CTPA) to confirm PTE. Following that, arterial blood gas sampling, ETCO<sub>2</sub> and AVDS were requested for all the patients based on capnography. Data analysis was performed using descriptive statistical tests in SPSS software version 11.5. The sensitivity, specificity, and positive and negative predictive values of AVDS and ETCO<sub>2</sub> were measured based on (CTPA) results. **Results:** The study was performed on 78 patients (mean age of 47.08± 15.6 years, 43 males/35 females) suspected to PTE. According to the results of CTPA, 37 patients did not develop PTE while 41 patients were with PTE. There was no significant difference between the two groups in terms of age and gender (P=0.999), while a statistically significant difference was found between the mean values of ETCO<sub>2</sub> and AVDS between the two groups (P<0.001). The best cut-off points for PTE diagnosis were 0.17 (based on AVDS, with sensitivity and specificity of 78.0% and 56.8%, respectively), and 26.5 (based on ETCO<sub>2</sub>, with sensitivity and specificity of 67.6% and 75.6%, respectively). In addition, the negative predictive values for AVDS and ETCO<sub>2</sub> were estimated as 70.0% and 71.43%, respectively. **Conclusion:** According to the results of this study, capnography could be effective to promptly rule out PTE in emergency situations. Given its negative predictive value to rule out PTE, ETCO<sub>2</sub> is considered as the most valid criterion among capnography parameters

## کلمات کلیدی:

Alveolar Dead Space, Capnography, End-Tidal CO<sub>2</sub>, Pulmonary Thrombo-Embolism

