Diagnostic value of end-tidal carbon dioxide in the differential diagnosis of unstable angina and non-cardiac chest pain: A prospective case-control study

Objective: This study aims to investigate the diagnostic value of End-tidal carbon dioxide (ETCO2) measured non-invasively at the bedside in order to distinguish between unstable angina pectoris (UAP) and non-cardiac chest pain among patients who present to the emergency department with chest pain without a history of cardiac pathology.

Material and methods: This clinical study is a prospective case-control study among patients presenting to the emergency department of a tertiary hospital with chest pain. After evaluating the inclusion and exclusion criteria, the patients were divided into two groups: 62 patients with UAP and 62 patients with non-cardiac chest pain. Receiver Operating Characteristic (ROC) analysis was used to determine the cut-off in diagnostic value measurements. For UAP prediction, the odds ratio of ETCO2 (including 95% confidence intervals) was calculated using univariate with binary logistic regression analysis.

Results: ETCO2 had an excellent diagnostic power in detecting UAP, with 35 cut-offs determined (AUC: 0.84, 95% Cl: 0.76–0.90, $p < 0.001$). When ETCO2, which affects both non-cardiac chest pain and UAP, is evaluated, an ETCO2 of <35 is statistically significant and 9.74 times more common among UAP patients than patients with non-cardiac chest pain.

Conclusion: ETCO2, a non-invasive parameter that can be measured immediately at the bedside, may be proposed as a potential biomarker for differentiating patients with UAP from those with non-cardiac chest pain.