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Title: Serum procalcitonin (PCT-Q) as a diagnostic tool for bacterial lower respiratory tract infection among COPD patients with acute exacerbation

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Body: Objective: To determine diagnostic performance of serum PCT-Q (BRAHMS procalcitonin commercial kit) for bacterial lower respiratory tract infection among COPD patient with exacerbation. Material and methods: Prospective study was conducted in 40 hospitalized COPD patients with exacerbation between June 2008 and January 2009. Patient clinical profiles including the presence of infiltrate on chest roentgenogram, leukocytosis, positive sputum culture for bacteria and clinical outcome (mortality, length of stay and mechanical ventilation requirement) were determined. Serum procalcitonin concentration was measured by both PCT-Q commercial kits and standard quantitative assay on the first day of admission. Result: The diagnostic yield of PCT-Q for pneumonic exacerbation (the presence of pulmonary infiltrate) exhibits sensitivity and specificity of 100% and 71.9% whereas the test exhibits 50.0% sensitivity and 73.3% specificity for the presence of leukocytosis. However, positive PCT-Q provides 40.9 % sensitivity and 50.0%specificity for determining bacterial causes of exacerbation (defined by bacterial culture positivity in sputum). There is no significant correlation between positive PCT-Q and the mechanical ventilator requirement (p=0.864) as well as an average length of stay (p=0.139). The correlation between the positive PCT-Q and positive standard serum assay is noted. Conclusion: PCT-Q can be used as biomarker for pneumonic exacerbation in COPD patients whereas the PCT-Q level is poorly correlated with the clinical outcome. In addition, correlation of kits and standard assay is noted. However, the benefit of PCT-Q is shorter turnaround time.