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Abstracts

☐ C-REACTIVE PROTEIN TESTING TO GUIDE ANTIBIOTIC PRESCRIBING FOR COPD EXACERBATIONS.

Butler CC, Gillespie D, White P, et al. *The New England Journal of Medicine.* 2019; 381:111-20

In the United States, 6.4% of the population carries a diagnosis of chronic obstructive pulmonary disease (COPD) and it was the third leading cause of death in 2014. Approximately 75% of these patients present at least once a year to a provider for COPD exacerbation and most of these receive antibiotics. However, it is well known that antibiotics can have adverse effects and available evidence suggests that antibiotics are not always necessary for COPD exacerbation. The objective of this study was to determine if point of care (POC) CRP utilization to guide antibiotic therapy for COPD exacerbations in the primary care setting can reduce antibiotic use without harm.

The researchers conducted an open-label, randomized, controlled, multicenter trial in the United Kingdom and Wales. Eligible patients were over 40 years old and have a documented history of COPD. Researchers obtained information regarding symptom duration, medical history, physical exam findings and sputum/ throat swab collection prior to randomization. Participants completed the Clinical COPD Questionnaire and the European Quality of Life- 5 Dimensions 5-Level (EQ-5D-5L) questionnaire before being randomized as well. Subjects were randomized 1:1 to either care supplemented by point of care CRP, or standard care. Physicians taking care of patients in the CRP group used CRP in the initial and every subsequent encounter. They were given guidelines from the National Institute for Health and Care Excellence and the Global Initiative for Chronic Obstructive Lung Disease to help with interpretation of CRP results. For example, these guidelines suggested that patients with CRP levels <20mg/L would likely not benefit from antibiotics. Patients were followed up at 1 week, 2weeks, 4 weeks, and 6 months through a combination of phone calls, in-person consultation, and mailed surveys.

There were two primary outcomes for the study. The first was to determine if there was a reduction in antibiotic use in patients presenting with acute COPD exacerbation when CRP was used to direct therapy. The second was COPD-related health status at 2 weeks as measured by the Clinical COPD Questionnaire. There were a number of secondary outcomes evaluated to include the prevalence of potentially pathogenic and resistant organisms in the throat or sputum, utilization of other COPD treatments, health status as measured by the EQ-5D-5L, and antibiotic prescribing and use for any cause during the first 4 weeks of follow-up.

Of the 653 patients who were randomized, 325 were assigned to the CRP guided group and 324 were assigned to the usual care group (3 patients withdrew consent and 1 patient with incorrect randomization had their data destroyed). Baseline characteristics were similar between the two groups. The percentage of patients with antibiotic use was lower in the CRP group (57% vs 77.4%) with an adjusted odds ratio of 0.31 (95% CI: 0.20-0.47). Regarding clinical outcomes, the difference in the Clinical COPD Questionnaire score was -0.19 points (two sided 90% CI: -0.33 to -0.05) favoring the CRP group. Secondary measures such as pathogen type, utilization of other treatments, and other quality of life scores did not show any difference between the two groups.

The authors concluded that using point of care CRP to determine the need for antibiotic treatment in patients presenting with COPD exacerbations by led to fewer antibiotic prescriptions and reported antibiotic use without any evidence of harm to the patients.

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Comment: While this study shows promise in potentially curbing unnecessary antibiotic use in patients presenting with COPD exacerbations, we cannot yet recommend directly applying these data to emergency department patients in the US. Patients often self-select to present to the emergency department, rather than their primary care physician, which could possibly indicate higher acuity or likelihood of needing antibiotics. Additionally, study subjects were not blinded to having received the point-of-care test. Future studies involving the use of CRP in emergency department COPD patients would be useful in determining whether or not practice patterns should change in this specific population.

☐ THE EFFECT OF HEMORRHAGE CONTROL ADJUNCTS ON OUTCOME IN SEVERE PELVIC FRACTURE: A MULTI-INSTITUTIONAL STUDY.

Duchesne J, Costantini T, Khan M, et al. *J Trauma Acute Care Surg*. 2019; 87: 117-124

Pelvic fractures complicated by hemorrhagic shock continue to be a significant challenge to trauma surgeons with a mortality rate up to 30%. The initial hemorrhage control interventions applied to these patients varies between trauma centers and thus there is a lack of consensus regarding the best method to control hemorrhage and their effects on patient outcomes. The