COPD exacerbation in primary care: Point of care CRP can effectively support decisions on using antibiotics

Need for reducing antibiotics in exacerbations of COPD

Antibiotics are often prescribed to exacerbations of COPD based on clinical signs (the Anthonisen criteria). However, antibiotics are beneficial only to subset of outpatients, as exacerbations are often caused by other factors than bacteria.

Did you know? Unnecessary antibiotic prescriptions drive antimicrobial resistance and may cause adverse individual effects such as side effects or carriage of resistant microbes in lungs increasing the risk of subsequent antibiotic-resistant exacerbations.[1]

Point of care CRP is a safe and cost-efficient way

ACE study is a recently reported, randomized controlled trial of 649 COPD patients with acute exacerbation. The study has investigated the effectiveness of point of care CRP testing in helping guide antibiotic consumption in outpatient setting.[2]

Patients in the CRP testing group reported 20% less antibiotic use compared to the usual care group. There were no associated harms or increased costs.[1,3]

Both GPs and COPD patients value point of care CRP testing

In the PACE study, both GPs ant patients felt that CRP result was an objective sign of severity of illness. According to interviews with GPs, it also enhanced their confidence in antibiotic prescribing decisions and facilitated communication with patients about the decisions.[4]

CRP in COPD

Patients with chronic obstructive pulmonary disease (COPD) have slightly higher CRP levels compared to healthy population[5,6]. CRP increases more significantly in COPD exacerbations of bacterial origin. Both POC and laboratory CRP-guided prescribing of antibiotics has shown to significantly decrease unnecessary antibiotic use in COPD exacerbations without causing harm for the patients[5,7].

CRP >40 mg/l was used as cut-off when antibiotics likely benefit the patient and values below 20 mg/l indicated that antibiotics are unlikely to be beneficial and should not be prescribed in the PACE study. One-third of participants with a CRP level of < 20 mg/l were nevertheless prescribed antibiotics.[3] Based on previous evidence, it is likely that antibiotics could be refrained from these individuals thereby further reducing the antibiotic consumption[8].

References

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Summary of COPD studies with Aidian's point of care CRP tests

QuikRead CRP has been used in studies with non-severe COPD patients (FEV_1 >50 %). Point of care testing may be particularly useful with non-severe COPD as these patients are often managed in outpatient settings.

Is it possible to identify exacerbations of mild to moderate COPD that do not require antibiotic treatment?

Yes, it is! Outcome of this study was that CRP (<40 mg/l) and having increased sputum purulence can help to identify patients with exacerbated mild to moderate COPD that can be safely treated without antibiotics in ambulatory setting. The use of a point-of-care CRP test significantly increases the accuracy of prediction.

In the study, the best predictors of outcomes in exacerbations of mild to moderate COPD not treated with antibiotics were evaluated (n=152). Clinical response in relation to Anthonisen criteria and point of care CRP tests (cut-off, 40 mg/l) was assessed.

Miratvilles M. et al. Chest 2013; 144 (5):1571−7. http://www.ncbi.nlm.nih.gov/pubmed/23807094.

Situations in which treatment of acute exacerbations in non-severe COPD with antibiotics is not necessary.

Outcome of the thesis: CRP has a role in predicting the clinical outcome in exacerbations of COPD. This suggests that CRP may be used when deciding whether antibiotic treatment would be needed.

The main objective of this doctoral thesis was to evaluate the effectiveness of antibiotic therapy in acute exacerbations of mild-to-moderate COPD. Altogether 353 COPD patients were included in this double-blinded placebo-controlled randomized clinical trial.

Moragas Moreno A. Doctoral thesis, the Rovira I Virgili University, Tarragona, Spain 2011. http://www.tesisenred.net/bitstream/handle/10803/63590/Tesis.pdf?sequence=1

QuikRead go CRP tests give quick support for antibiotic prescribing decisions

Fast – 2 minutes' test time supporting fast patient flow at the point of care

Flexible – 2 hours' sample stability, minimum hands on time and portable instrument support flexible testing in various locations.

Reliable – Comparability to clinical chemistry analyzers and enhanced bi-directional connectivity features ensure reliable results at the point of care.

Easy to use – Only a fingertip of blood needed. Maintenance-free instrument with intuitive user interface.

