Title: CRP as predictor as predictor for late treatment failure in hospitalised patients with AECOPD

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Body: Background: 30-day treatment failure rates are high amongst patients admitted with an acute exacerbation of COPD(AECOPD). The aim of this study is to identify whether CRP level measured at day10(CRP-d10) is a risk factor for the development of treatment failure within 30 days. Methods: 265 hospitalized subjects with AECOPD where enrolled(1). Sixty-six patients where excluded because of early treatment failure(<10 days). Patients received oral doxycycline or placebo for 7 days and systemic corticosteroids. Of 141 subjects CRP-d10 was measured after completing treatment. Results: 38 subjects had treatment failure at day 30. Median CRP-d10 in the treatment failure group was 2,5 mg/L(IQR:1.0-5.3mg/L) vs 4.0 mg/L(IQR 2.0-8.8mg/L) in the none-treatment failure group(p=0.16). CRP-d10 was influenced by treatment with doxycycline 2,5mg/L (IQR 1,0-4,0mg/L) or placebo 4mg/L (IQR 2.0-12mg/L)(p=0.006). Treatment failure was not influenced by antibiotic treatment: failure rate in doxy vs placebo 51.2% vs 48.8% p=0.984. Any pathogen found in a sputum culture on day 8 did effect the CRP-d10 levels. A positive culture with any pathogen vs a negative sputum culture resulted in a median CRP level of 4.0mg/L (IQR 2.0-12.0mg/L) vs 2,5mg/L (IQR 1.0-5.3mg/L) in the negative sputum culture(p=0.015). Positive culture vs negative culture failure rate was 24.7% vs 20.7% (p=0.151) Conclusion: CRP-d10 is not a reliable predictor for treatment failure in a hospitalised AECOPD. Antibiotic treatment resulted in a lower value of CRP-d10, but did not affect the treatment failure rate at day 30. The other factor that seems to play a role in CRP-10 level is bacterial growth although this does not implicate clinical success.