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Title: Bacterial airway colonization is not associated with increased procalcitonin in stable COPD

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Body: BACKGROUND: Bacterial colonization of the airways hampers the utility of sputum microbiology at exacerbation of COPD. We hypothesize that, in contrast to exacerbation, circulating procalcitonin remains low in bacterial colonization in patients with stable COPD. METHODS: We prospectively evaluated 638 patients with stable COPD for ≥ 6 weeks, > 10 PY and GOLD II-IV seeking care in pulmonary tertiary hospitals in 8 European countries and included in the PROMISE cohort. Median observation time was 24 months. RESULTS: There were 393 patients (61.6%) reporting sputum production and 88 (22.4%) sputum purulence. At baseline, 251 (39.2%) provided sputum for analysis. Bacterial cultures of good quality sputum (n=183) grew potentially pathogenic bacteria in 55 cases (30.1%). The most common isolated pathogens were Pseudomonas aeruginosa (n=18), followed by Haemophilus influenzae (n=14), Streptococcus pneumoniae (n=11), Moraxella catarrhalis and Enterobacter species (n=10 each). As compared with those presenting negative sputum results, patients with positive sputum bacteriology were significantly older ($p<0.0001$) but had a similar FEV1% pred ($p=0.077$), health-related QoL ($p=0.174$), MMRC scores ($p=0.407$) and 6MWD ($p=0.672$). Likewise, the exacerbation rate ($p=0.918$), severe exacerbation-rate ($p=0.272$) and survival ($p=0.824$) were comparable. Circulating procalcitonin values in patients with positive,

negative and not available sputum cultures were similar (median 95% CI 0.080[0.069-0.094] vs. 0.076 [0.064-0.091] vs. 0.080 [0.066-0.100], p= 0.312). CONCLUSION: In contrast to acute exacerbation of COPD, procalcitonin values remain low in chronic bacterial airway colonization in stable COPD.