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Inhaled aztreonam improves symptoms of cough and sputum production in patients with bronchiectasis: a *post hoc* analysis of the AIR-BX studies

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Inhaled aztreonam improves cough and sputum production in patients with bronchiectasis but has no impact on other symptoms. More sensitive tools to measure bronchitic symptoms may be useful to enrich for responders and to evaluate patient benefit. https://bit.ly/2UMKM5i

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ABSTRACT

Introduction: Inhaled antibiotics may improve symptom scores, but it is not known which specific symptoms improve with therapy. Item-level analysis of questionnaire data may allow us to identify which specific symptoms respond best to treatment.

Methods: *Post hoc* analysis of the AIR-BX1 studies and two trials of inhaled aztreonam *versus* placebo in bronchiectasis. Individual items from the quality of life bronchiectasis (QOL-B) respiratory symptom scale, were extracted as representing severity of nine distinct symptoms. Generalised linear models were used to evaluate changes in symptoms with treatment *versus* placebo from baseline to end of first on-treatment cycle and mixed models were used to evaluate changes across the full 16-week trial.

Results: Aztreonam improved cough (difference 0.22, 95% CI 0.08–0.37; p=0.002), sputum production (0.30, 95% CI 0.15–0.44; p<0.0001) and sputum colour (0.29, 95% CI 0.15–0.43; p<0.0001) *versus* placebo equating to a 20% improvement in cough and 25% improvement in sputum production and colour. Similar results were observed for cough, sputum production and sputum purulence across the trial duration (all p<0.05). Patients with higher sputum production and sputum colour scores had a greater response on the overall QOL-B (difference 4.82, 95% CI 1.12–8.53; p=0.011 for sputum production and 5.02, 95% CI 1.19–8.86; p=0.01 for sputum colour). In contrast, treating patients who had lower levels of bronchitic symptoms resulted in shorter time to next exacerbation (hazard ratio 1.83, 95% CI 1.02–3.28; p=0.042).

Conclusion: Baseline bronchitic symptoms predict response to inhaled aztreonam in bronchiectasis. More sensitive tools to measure bronchitic symptoms may be useful to better identify inhaled antibiotic responders and to evaluate patient response to treatment.