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Survival of Mycobacterium abscessus in artificially generated aerosols

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Objectives: There is emerging evidence supporting the possibility of airborne routes for transmission for Pseudomonas aeruginosa and Burkholderia cepacia complex between people with CF. More recently M. abscessus has emerged as a potentially important pathogen in people with CF with evidence of accelerated lung function decline [2].
The aim of this study was to determine whether M. abscessus could survive within artificially demonstrated aerosols using a previously described laminar airflow model [1].

Methods: Five strains of M. abcessus isolated from patients with CF and a reference strain were studied. Aerosols were generated using a Collison 3-jet nebuliser, delivered into an airtight pipe of varying lengths and sampled using an Andersen 6-stage impactor as previously described [1].

Results: All the strains studied were able to produce viable aerosols of M. abscessus which survived 81 s and travelled a distance of 4 m. All the aerosols contained particles which were predominantly less than 2 mm in diameter.

Conclusion: This study demonstrates that M. abscessus can survive within artificially generated aerosols in particles within the respirable range. Cross-infection of M. abscessus between people with CF could potentially occur via an airborne route. The survival of M. abscessus within the laminar airflow model was very similar to that of P. aeruginosa [1]. These results have important implications for the care

of people with CF and reinforces the need for strict infection control practices to minimise the risk of cross-infection which pathogens such as M. abscessus.

Reference(s)

[1] Clifton et al. BMC Microbiol 2008.

[2] Esther et al. J Cyst Fibros 2010.