primary studies - published RCT

Clinical response to azithromycin in cystic fibrosis correlates with in vitro effects on Pseudomonas aeruginosa phenotypes.

Code: PM17469154 **Year:** 2007 **Date:** 2007 **Author:** Nguyen D

Study design (if review, criteria of inclusion for studies)

6-month clinical trial of azithromycin

Participants

American cystic fibrosis (CF) patients with chronic Pseudomonas aeruginosa infection

Interventions

correlate bacterial phenotypes of P. aeruginosa isolates with clinical response to AZM in CF patients. Pre-treatment P. aeruginosa isolates from subjects randomized to AZM in the US trial were characterized for bacterial phenotypes

Outcome measures

AZM minimal inhibitory concentration (MIC), mucoidy, and baseline and AZM effects on twitching and swimming motility, and production of pyocyanin, protease and phospholipase C (PLC)

Main results

Initial analyses of a subset of subjects identified phenotypes most strongly associated with FEV(1) response and pulmonary exacerbation. These phenotypes were subsequently characterized and tested in isolates from subjects of the complete AZM cohort. Exploratory analyses of the initial subset suggested that the MIC and in vitro change in PLC and swimming motility with AZM were the strongest candidates among the bacterial phenotypes. When tested, only the change in PLC was significantly correlated with the change in FEV(1) (P=0.05), and occurrence and time to pulmonary exacerbation (both P=0.02). In the complete cohort, change in PLC continued to show significant correlation with FEV(1) response (P=0.006), but not exacerbation. The in vitro effect of AZM on PLC correlates with FEV(1) response to AZM.

Authors' conclusions

This suggests that AZM anti-virulence effects may be predictive of clinical response and play a role in the mechanism of action of AZM in CF patients.

http://dx.doi.org/10.1002/ppul.20620

See also

Pediatr Pulmonol. 2007 Jun;42(6):533-41.

Keywords

Adolescent; Adult; Anti-Bacterial Agents; Azithromycin; Bacterial Infections; Infection; pharmacological_intervention; Pseudomonas aeruginosa; Pseudomonas; Respiratory Tract Diseases; Respiratory Tract Infections; Macrolides; Anti-Inflammatory Agents; Anti-Inflammatory Agents - excl Steroids;