primary studies - published RCT

Efficacy of once-daily tobramycin monotherapy for acute pulmonary exacerbations of cystic fibrosis: a preliminary study.

Code: PM11340683 **Year:** 2001 **Date:** 2001 **Author:** Master V

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

double-blind RCT, 2 years.

Participants

CF patients with PA-induced pulmonary exacerbations. Conv group (n = 51 admissions); Mono group (n = 47)

Interventions

CF patients received either once-daily tobramycin (Mono) or conventional therapy with tobramycin/ceftazidime given 8-hourly (Conv). Tobramycin doses were adjusted to achieve a daily area under the time-concentration curve of 100 mg x hr/L in both groups.

Outcome measures

Results were assessed for both short-term changes (efficacy and safety after 10 days of IV antibiotics during acute exacerbations) and long-term changes (efficacy, safety, and sputum microbiology between study entry and exit). Pulmonary function tests (PFTs) on admission were similar in both groups.

Main results

After 10 days of IV antibiotics, absolute mean improvements in percent of predicted PFTs were 12.8, 12.1, and 13.7 for forced expiratory volume in 1 sec (FEV(1)), forced vital capacity (FVC), and forced expired flow between 25--75% of FVC (FEF(25--75%)) in the Conv group (n = 51 admissions) compared to 10.6, 9.9, and 10.6 in the Mono group (n = 47)(P<0.05 for all). Sixteen percent in the Conv group and 15% of patients in the Mono group did not respond to therapy by day 10. Long-term PFT patterns were similar for the Conv and Mono groups. The time between admissions did not differ. The Mono group showed a significant increase in tobramycin minimum inhibitory concentrations (MICs) against PA from study entry to study exit (P = 0.02, n = 27 strains); this failed to reach significance in the Conv group (P = 0.08, n = 25). There was no significant increase in the number of isolates, with MIC> or =8 mg/L in both groups. No short- or long-term changes in audiology or serum creatinine were found in either group. After 10 days of IV therapy, the urinary enzyme N-acetyl-beta-d-glucosaminidase/creatinine ratios increased in both groups (P0.05). This increase was greater in the Conv compared to the Mono group (P

Authors' conclusions

this pilot study indicates once-daily tobramycin therapy to be as effective and safe as conventional 8-hourly tobramycin/ceftazidime therapy. Combination antibacterial therapy appears to offer no clinical advantage over once-daily tobramycin monotherapy. Tobramycin once-daily monotherapy is a potential alternative to conventional IV antibacterial therapy which deserves further investigation, including the impact on susceptibility of PA to tobramycin.

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See also

Pediatr Pulmonol. 2001 May;31(5):367-76.

Keywords

Adolescent; Adult; Anti-Bacterial Agents; Bacterial Infections; Ceftazidime; Cephalosporins; Child; Combined Modality Therapy; Delayed-Action Preparations; Infection; Intravenous; Monotherapy; pharmacological_intervention; Pseudomonas aeruginosa; Pseudomonas; Respiratory Tract Diseases; Respiratory Tract Infections; Tobramycin; Exacerbation; Aminoglycosides;