primary studies - published RCT

Altered steady state pharmacokinetics of levofloxacin in adult cystic fibrosis patients receiving calcium carbonate.

Code: PM16481224 **Year:** 2006 **Date:** 2006 **Author:** Pai MP

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

open-label, randomized, cross-over study

Participants

5 patients with cystic fibrosis and five age, sex, race, and serum creatinine matched healthy volunteers

Interventions

750 mg of oral levofloxacin alone daily for 5 days and the same dose of levofloxacin with 2-h spaced calcium carbonate supplementation 500 mg po thrice daily with meals in random sequence.

Outcome measures

Blood was collected for plasma assay of levofloxacin pre-dose, 0.5, 1, 1.5, 2, 4, 8, 12, and 24h after the fifth levofloxacin dose.

Main results

There was no significant interaction in healthy volunteers, however, when cystic fibrosis patients were given levofloxacin with 2-h spaced calcium, the maximum plasma concentration (Cmax) decreased by 19% and time to Cmax increased by 37% (p

Authors' conclusions

These results indicate that multivalent cations such as calcium should be maximally separated from oral levofloxacin administration in adult patients with cystic fibrosis to prevent this drug interaction, thereby better optimizing antibiotic efficacy and decreasing the potential for resistance development.

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See also

J Cyst Fibros. 2006 Aug;5(3):153-7. Epub 2006 Feb 14.

Keywords

Adolescent; Adult; Airway clearance technique; Anti-Bacterial Agents; Bone Diseases; Drug Administration Schedule; levofloxacin; non pharmacological intervention - diet; non pharmacological intervention - devices OR physiotherapy; Ofloxacin; Osteoporosis; pharmacological_intervention; Supplementation; Bacterial Infections; Respiratory Tract Infections; Respiratory Tract Diseases; Infection; Oral; Quinolones;