*primary studies - published RCT*

# Lung deposition in cystic fibrosis patients using an ultrasonic or a jet nebuliser.

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

Randomised, cross-over study.

### Participants

10 CF patients(age 9 to 21 years).

### Interventions

Single dose 20 mg sodium cromoglycate and beta agonist with: 1. ultrasonic nebuliser; 2. jet nebuliser.

### Outcome measures

Treatment time. Residual volume of medication in nebuliser. Excreted sodium cromoglycate in urine up to 12 hours post-dose

### Main results

Using the ultrasonic nebulizer, the amount of SCG excreted in urine was significantly greater than that after inhalation with the jet nebulizer (1.43 +/- 0.47 mg vs. 1.04 +/- 0.47 mg; p = 0.002), despite the larger residual volume in the ultrasonic nebulizer. The absorption half-life for SCG following ultrasonic nebulization was significantly shorter when compared with jet nebulization (84 +/- 14 min vs. 101 +/- 19 min; p = 0.005), being suggestive of a more peripheral deposition. Furthermore, an inverse relationship was found between absorption half-life and FEV(1) (% pred.) (r = -0.655, p = 0.04) or MMEF(75/25) (% pred.) (r = -0.844, p = 0.031), but only with the ultrasonic nebulizer.

### Authors' conclusions

The ultrasonic nebulizer tested when used for inhalation in CF patients was found to be at least equivalent to the jet nebulizer.

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### See also

Journal of Aerosol Medicine 2003;16(1):37-46.

### Keywords

Inhalation OR nebulised; non pharmacological intervention - devices OR physiotherapy; nebuliser; Adrenergic beta-Agonists; Bronchodilator Agents; Respiratory System Agents; pharmacological_intervention;