primary studies - published RCT

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

Code: PM12737683 **Year:** 2003 **Date:** 2006 **Author:** Köhler E

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

RCT

Participants

children in the Wisconsin CF Neonatal Screening Project

Interventions

CT

Outcome measures

Three radiologists independently scored 16 high-resolution CT scans performed on children in the Wisconsin CF Neonatal Screening Project. The test scans were selected to provide a broad range of disease severity. The scoring system provided subscores for the presence and severity of 5 findings of CF lung disease. The sum of the subscores provided a total score. The CT scans were then read again by each of the radiologists at least 11 months later. Using Mixed Effects Linear Model Analysis, the sources of error (scan-to-scan variation, interrater variance, and intrarater variance) were calculated.

Main results

For the total score, the scan-to-scan variation was 14.48, interrater variance was 0.28, and intrarater variance was 0.45, with an overall reproducibility of 95%. The square root of scan-to-scan variance, a measure of sensitivity, was 3.81. Evaluation of the subscores showed higher reproducibility for bronchiectasis and hyperinflation (95% and 88%, respectively). The bronchiectasis score was more sensitive than the air-trapping score (1.46 vs. 0.89)

Authors' conclusions

This system was developed to provide a reproducible method that could be used to evaluate the lobar location, severity, and extent of a broad spectrum of CT features of CF lung disease, especially in children. This study demonstrates that the overall score is both sensitive to variation in the severity of lung disease and reproducible.

http://dx.doi.org/10.1089/089426803764928347

See also

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

Keywords

Adolescent; Child; Bronchiectasis; Respiratory Tract Diseases; computed tomography; diagnostic procedures; non pharmacological intervention - diagn;