primary studies - published RCT

The effects of albuterol on the lung function of hospitalized patients with cystic fibrosis.

Code: PM8680672 **Year:** 1996 **Date:** 1996 **Author:** Hordvik NL

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

Placebo-controlled cross-over trial over 2 days

Participants

24 participants (14 males), age range 13 - 33 years. NIH score 49 - 89

Interventions

Nebulised albuterol 0.5% (5 mg) or placebo to the first 3 of 4 CPT sessions at 700 hours, 1100 hours, 1500 hours and 1900 hours

Outcome measures

Changes in spirometry (FVC FEV1 FEF25-75) measured pre- and 45 minutes post 0700 hours and 1500 hours, pre- 900 hours and pre-700 hours next morning

Main results

The mean percent change in FVC, FEV1, and FEF25-75% at 7:00 A.M. was 10.7, 14.8, and 19.6% with albuterol versus 2.4, 1.0, and -0.8% with placebo ($p = 0.0012$, < 0.0001, and $= 0.003$, respectively). A greater than 8% change in FEV1 separated changes with albuterol versus placebo with 96% specificity and occurred in 75% of all patients with albuterol; 71% at 7:00 A.M. versus 24% at 3:00 P.M. The reduction in response at 3:00 P.M. ($p < 0.01$) was presumably due to prolonged effects of morning therapy (> 4 h). Individual changes in spirometry were significantly more positive and homogeneous with albuterol versus placebo at both 7:00 A.M. and 3:00 P.M. The mean percent change for the FVC, FEV1, and FEF25-75 across the day (7:00 A.M. pretherapy to 7:00 P.M. pretherapy) was 8.1, 10.1, and 9.7% with albuterol versus 3.9, 3.5 and 2.6% with placebo ($p = 0.029$, 0.036, and 0.232, respectively).

Authors' conclusions

The more positive and homogeneous changes in spirometry with albuterol, along with greater changes in these measures across the day when compared with placebo, suggest that albuterol improves pulmonary function in a majority of hospitalized patients with cystic fibrosis.

http://www.mrw.interscience.wiley.com/cochrane/clcentral/articles/977/CN-00126977/frame.html

See also

Am J Respir Crit Care Med. 1996 Jul;154(1):156-60.

Keywords

Adolescent; Adult; Albuterol; Artificial Ventilation; Bronchodilator Agents; Hospitalization; Hospital care; non pharmacological intervention - devices OR physiotherapy; non pharmacological intervention - psyco-soc-edu-org; pharmacological_intervention; Ventilators; Adrenergic beta-Agonists; Respiratory System Agents; Organization;