primary studies - published RCT

Effect of nebulized albuterol on blood glucose in patients with diabetes mellitus with and without cystic fibrosis.

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

double-blind study

Participants

10 patients with type 1 diabetes mellitus (DM) without CF (3 males, 7 females, mean age 25.5 years) and 9 patients with insulin-dependent CF-related diabetes (CFRD) (8 males, 1 female, mean age 21.9 years).

Interventions

On 2 separate days before 9 AM fasting and the morning dose of insulin, 2.5 mg of albuterol or nebulized placebo were given.

Outcome measures

Blood glucose was measured by finger stick with a glucose reflectance meter before and 15, 30, 45, and 60 min after treatment.

Main results

No significant changes from baseline or differences between placebo and albuterol occurred in either group. The mean maximum increase from baseline in DM was 20 mg/dl on placebo, and 38 mg/dl on albuterol; in the CFRD, the respective changes were 7 and 7 mg/dl. Two DM patients had a > 50 mg/dl increase on albuterol vs. placebo; no CFRD patients had differences of such magnitude. DM patients had greater increases from baseline than CFRD patients on placebo and albuterol. Differences reached statistical significance at 30 and 45 min on placebo, and 45 min on albuterol.

Authors' conclusions

Albuterol 2.5 mg by nebulizer causes no clinically significant increases in blood glucose in DM or CFRD patients. Diabetes patients without CF have a significantly greater increase of glucose with time (placebo or albuterol) than CFRD patients.

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See also

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Keywords

Adolescent; Adult; Albuterol; Bronchodilator Agents; Diabetes Mellitus; Gastrointestinal Diseases; Inhalation OR nebulised; nebuliser; non pharmacological intervention - devices OR physiotherapy; Pancreatic Diseases; pharmacological_intervention; placebo; insulin; Adrenergic beta-Agonists; Respiratory System Agents; Hypoglycemic Agents;