primary studies - published RCT

Moderate intensity exercise mediates comparable increases in exhaled chloride as albuterol in individuals with cystic fibrosis.

Code: PM26077038 **Year:** 2015 **Date:** 2015 **Author:** Wheatley CM

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

Randomized crossover study

Participants

Fourteen CF (13-42 yrs.) and sixteen healthy (18-42 yrs.) subjects

Interventions

Albuterol and submaximal exercise.

Outcome measures

Exhaled breath condensate (EBC) collection and nasal potential difference (NPD). EBC was collected at baseline, 30- and 60-min post-albuterol administration, and at baseline and during three separate 15 min cycling exercise bouts at low, moderate, and vigorous intensity (25, 50 and 65% of the maximum workload, respectively). NPD was performed at 30- and 80-min post albuterol or following moderate and vigorous intensity exercise.

Main results

CF subjects had lower EBC Cl(-), but no difference in EBC Na(+) at baseline when compared to healthy subjects. EBC Cl(-) increased four-fold with moderate exercise which was similar to that seen 60-min post albuterol administration for CF subjects. Neither exercise nor albuterol altered EBC Na(+). The change in NPD voltage with amiloride (DeltaAmil) was greater and there was minimal Cl(-) secretion (DeltaTCC) seen at baseline in the CF compared to the healthy subjects. DeltaAmil was greater with both albuterol and exercise when compared to baseline within both CF and healthy groups, but there was no significant difference in the DeltaTCC response with either treatment.

Authors' conclusions

Both exercise and albuterol can alter ion regulation increasing Cl(-) secretion to a significant and similar degree in individuals with CF.

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See also

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Keywords

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