primary studies - published RCT

Sildenafil improves exercise capacity in patients with cystic fibrosis: a proof-of-concept clinical trial.

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

Randomized, double-blind, placebo-controlled, crossover study

Participants

Patients with cystic fibrosis

Interventions

Sildenafil, a phosphodiesterase type 5 (PDE5) inhibitor. An acute dose of either sildenafil (50 mg) or placebo (n = 13, age 25 +/- 10), followed by a 4 week open-label extension with sildenafil (20 mg, TID; n = 15, age 23 +/- 11).

Outcome measures

A comprehensive evaluation of pulmonary function and a maximal exercise test were each performed at every visit. VO2 peak, exercise capacity, exercise duration

Main results

A significant increase in VO2 peak was observed after the acute sildenafil dose with no changes following placebo (77 +/- 13 versus 72 +/- 13% predicted; p = 0.033). In addition, after 4 weeks of treatment, patients showed a significant increase in exercise capacity (72 +/- 12 versus 75 +/- 12% predicted; p = 0.028) and exercise duration (409 +/- 98 versus 427 +/- 101 s; p = 0.014). A robust correlation (r = 0.656; p = 0.008) between baseline FEV1 (% predicted) and the change in exercise capacity following 4 weeks of treatment was identified.

Authors' conclusions

This proof-of-concept clinical trial demonstrates that sildenafil treatment can improve exercise capacity in patients with CF and that pulmonary function may play an important role in the effectiveness of treatment. Future investigations of sildenafil treatment in patients with CF are certainly warranted.

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See also

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Keywords

Sildenafil; Adult; CFTR Modulators; pharmacological_intervention;