primary studies - published RCT

A controlled study of adenoviral-vector-mediated gene transfer in the nasal epithelium of patients with cystic fibrosis.

Code: PM7544439 **Year:** 1995 **Date:** 1995 **Author:** Knowles MR

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

randomized, blinded fashion

Participants

12 patients with cystic fibrosis.

Interventions

An adenoviral vector containing the normal CFTR complementary DNA in four logarithmically increasing doses (estimated multiplicity of infection, 1, 10, 100, and 1000), or vehicle alone, was administered to the nasal epithelium of patients.

Outcome measures

Gene transfer was quantitated by molecular techniques that detected the expression of CFTR messenger RNA and by functional measurements of transepithelial potential differences (PDs) to assess abnormalities of ion transport specific to cystic fibrosis. The safety of this treatment was monitored by nasal lavage and biopsy to assess inflammation and vector replication.

Main results

The adenoviral vector was detected in nasal-lavage fluid by culture, the polymerase chain reaction (PCR), or both in a dose-dependent fashion for up to eight days after vector administration. There was molecular evidence of gene transfer by reverse-transcriptase PCR assays or in situ hybridization in five of six patients treated at the two highest doses. However, the percentage of epithelial cells transfected by the vector was very low (

Authors' conclusions

In patients with cystic fibrosis, adenoviral-vector-mediated transfer of the CFTR gene did not correct functional defects in nasal epithelium, and local inflammatory responses limited the dose of adenovirus that could be administered to overcome the inefficiency of gene transfer.

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See also

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Keywords

Adult; Gene Transfer Techniques; Infection; non pharmacological intervention - genetic& reprod; pharmacological_intervention; Respiratory Tract Diseases; Respiratory Tract Infections;