primary studies - published RCT

Ataluren (PTC124) induces cystic fibrosis transmembrane conductance regulator protein expression and activity in children with nonsense mutation cystic fibrosis.

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

RCT

Participants

The study enrolled 30 patients (16 males and 14 females, ages 6 through 18 yr) with a nonsense mutation in at least one allele of the CFTR gene, a classical CF phenotype, and abnormal baseline nasal epithelial chloride transport.

Interventions

Patients took ataluren three times per day (morning, midday, and evening) with randomization to the order of receiving a lower dose (4, 4, and 8 mg/kg) and a higher dose (10, 10, and 20 mg/kg) in the two cycles

Outcome measures

nasal chloride transport response (at least a -5mV improvement), proportion of nasal epithelial cells expressing apical full-length CFTR protein. Adverse events and laboratory abnormalities

Main results

Ataluren induced a nasal chloride transport response (at least a -5mV improvement) or hyperpolarization (value more electrically negative than -5 mV) in 50% and 47% of patients, respectively, with more hyperpolarizations at the higher dose. Improvements were seen in seven of nine nonsense mutation genotypes represented. Ataluren significantly increased the proportion of nasal epithelial cells expressing apical full-length CFTR protein. Adverse events and laboratory abnormalities were infrequent and usually mild. Ataluren pharmacokinetics were similar to those in adults.

Authors' conclusions

In children with nonsense mutation CF, ataluren can induce functional CFTR production and is well tolerated.

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See also

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Keywords

PTC124; Ataluren; CFTR Modulators; pharmacological_intervention;