Other Reviews - - Other Review

A systematic review and meta-analysis of the treatment modalities available for children afflicted from cystic fibrosis.

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

Systematic review

Participants

A comprehensive literature search was conducted using different search strings across multiple databases, including PubMed, Cochrane Library, EMBASE, WOS, Scopus, CINAHL, PsycINFO, and Google Scholar, up to October 2024. Randomized controlled trials (RCTs), case-control studies and cohort studies were included.

Interventions

The triple therapy. Physiotherapy and pulmonary exercises. Nutritional interventions. Azithromycin.

Outcome measures

CF-related complications,

Main results

The triple therapy indicated a significant reduction in CF-related complications, with an OR of 0.29 and an RR of 0.54, accompanied by low heterogeneity (IÂ² = 0% for both). Physiotherapy and pulmonary exercises also yielded a beneficial effect, with an OR of 0.24 and an RR of 0.49, without heterogeneity. In contrast, nutritional interventions revealed non-significant outcomes (ORâ€‰=â€‰6.91 and RRâ€‰=â€‰2.63), suggesting the need to re-evaluate these strategies. Ivacaftor alone did not achieve statistical significance (ORâ€‰=â€‰0.34 and RRâ€‰=â€‰0.58), and the confidence intervals were broad, indicating uncertainty in the effect estimates. Azithromycin exhibited a positive effect on CF management, with an OR of 2.37 and an RR of 1.54. The overall pooled OR across all treatments was 0.71, with an RR not computed due to substantial heterogeneity (IÂ²=93%).

Authors' conclusions

The study underscores the effectiveness of certain treatments, such as triple therapy and physiotherapy exercises, for CF while highlighting the considerable variability in treatment outcomes. Notably, nutritional interventions need to be carefully reassessed. The findings emphasize integrating physiotherapy and targeted pharmacological interventions into standard CF management tailored to individual needs.

http://dx.doi.org/10.1186/s12887-025-06161-y

See also

BMC Pediatr. 2025 Oct 3;25(1):753. doi: 10.1186/s12887-025-06161-y.

Keywords

CFTR Modulators; Genetic Predisposition to Disease; pharmacological_intervention; placebo; VX-770; VX-661; ivacaftor; Aminophenols; tezacaftor; VX-445; elexacaftor; Trikafta; Child; non pharmacological intervention - psyco-soc-edu-org; Psychoeducation; training; Self-Management; Systemic interventions; Behavioural interventions; Cognitive analytic therapy; information; Acapella; Active Cycle of Breathing Technique -ACBT-; Adolescent; Adult; Aerobic training; Airway clearance drugs -expectorants- mucolytic-mucociliary-; Airway clearance technique; Autogenic drainage; Chest physiotherapy; Chest Wall Oscillation; Combined Modality Therapy; Drainage; exercise; flutter; forced expiration technique; High Frequency Chest Wall Oscillation -HFCWO-; Inhalation OR nebulised; inspiratory muscle training; Intrapulmonary Percussive Ventilation; non pharmacological intervention - devices OR physiotherapy; oscillating devices; Percussion; Positive-Pressure Respiration- PEP- pep mask; Postural Drainage; Respiratory Tract Diseases; Anti-Bacterial Agents; Anti-Inflammatory Agents; Azithromycin; kaftrio;