Cochrane Database of Systematic Reviews - - Cochrane Review

Newborn screening for cystic fibrosis

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

Randomised or quasi-randomised controlled trials, published and unpublished, comparing screening to clinical diagnosis in people with CF.

List of included studies (2)

UK Trial 1991; Wisconsin Trial 1998

Participants

Children screened for CF as well as parents and carers of children screened for CF.

Interventions

Screening

Outcome measures

Anger among parents in response to a false-positive screening test; Anxiety among parents in response to a false-positive screening test; Brasfield chest X-ray scores; Confusion among parents in response to a false-positive screening test; Depression among parents in response to a false-positive screening test; Disbelief among parents in response to a false-positive screening test; Height below 10th percentile (at 13 years old); Incorrect interpretation by parents of a negative sweat test; Incorrect interpretation by parents of a positive IRT test; Lack of knowledge among parents about CF being among tests; Lack of knowledge among parents about neonatal screening; Shock among parents in response to a false-positive screening test; Weight below 10th percentile (at 13 years old); Wisconsin chest X-ray scores

Main results

Searches identified six trials. Two trials involving 1,124,483 neonates (210 with CF) with a maximum follow up of 17 years were eligible for inclusion. Varying study designs, outcomes reported and summary measures precluded calculation of pooled estimates and only data from one study were analysed. Severe malnutrition was less common among screened participants. Compared with screened participants, the odds ratio of weight below the tenth percentile was 4.12 (95% CI 1.64 to 10.38) and for height was 4.62 (95% CI 1.69 to 12.61) in the control group.At age seven, 88% of screened participants and 75% of controls had lung function parameters within normal limits of at least 89% predicted. At diagnosis chest radiograph scores were significantly better among screened participants; 33% of screened versus 50% of control participants had Wisconsin chest X-ray (WCXR) scores over five (P = 0.097) and 24% of screened versus 45% of control participants had Brasfield chest X-ray (BCXR) scores under 21 (P = 0.042)). Over time, chest radiograph scores were worse in the screened group (WCXR P = 0.017 and BCXR P = 0.041). Results were no longer significant after adjustment for genotype, pancreatic status, and Pseudomonas aeruginosa-culture results. In screened participants colonisation with Pseudomonas aeruginosa occurred earlier. Estimates suggest diagnosis through screening is less expensive.

Authors' conclusions

Two randomised controlled trials assessing neonatal screening in CF were identified; data from one study were included. Nutritional benefits are apparent. Screening provides potential for better pulmonary outcomes, but confounding factors influenced long-term pulmonary prognosis of people with CF. Screening seems less expensive than traditional diagnosis.

http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD001402.pub2/abstract

See also

Southern KW, Mérelle MME, Dankert-Roelse JE, Nagelkerke A. Newborn screening for cystic fibrosis. Cochrane Database of Systematic Reviews 2009, Issue 1. Art. No.: CD001402. DOI: 10.1002/14651858.CD001402.pub2.

Keywords

Neonatal Screening; Newborn; non pharmacological intervention - diagn; screening; diagnostic procedures;