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Self-management education for cystic fibrosis

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Abstract

Background

Self-management education may help patients with cystic fibrosis and their families to choose, monitor and adjust treatment requirements for their illness, and also to manage the effects of illness on their lives. Although self-management education interventions have been developed for cystic fibrosis, no previous systematic review of the evidence of effectiveness of these interventions has been conducted.

Objectives

To assess the effects of self-management education interventions on improving health outcomes for patients with cystic fibrosis and their caregivers

Search strategy

We searched the Cochrane Cystic Fibrosis and Genetic Disorders Group Trials Register (date of the last search: 23 February 2011).

We also searched databases through EBSCO (CINAHL; Psychological and Behavioural Sciences Collection; PsychInfo; SocINDEX) and Elsevier (EMBASE) and handsearched relevant journals and conference proceedings (date of the last searches: 30th March 2011).

Selection criteria

Randomised controlled trials, quasi-randomised controlled trials or controlled clinical trials comparing different types of self-management education for cystic fibrosis or comparing self-management education with standard care or no intervention.

Data collection and analysis

Two authors assessed trial eligibility and risk of bias. Three authors extracted data.

Main results

Four trials (involving a total of 269 participants) were included. The participants were children with cystic fibrosis and their parents or caregivers in three trials and adults with cystic fibrosis in one trial. The trials compared four different self-management education interventions versus standard treatment: (1) a training programme for managing cystic fibrosis in general; (2) education specific to aerosol and airway clearance treatments; (3) disease-specific nutrition education; and (4) general and disease-specific nutrition education. Training children to manage cystic fibrosis in general had no statistically significant effects on weight after six to eight weeks, mean difference -7.74 lb (95% confidence interval -35.18 to 19.70). General and disease-specific nutrition education for adults had no statistically significant effects on: pulmonary function (forced expiratory volume at one second), mean difference -5.00 % (95% confidence interval -18.10 to 8.10) at six months and mean difference -5.50 % (95% confidence interval -18.46 to 7.46) at 12 months; or weight, mean difference -0.70 kg (95% confidence interval -6.58 to 5.18) at six months and mean difference -0.70 kg (95% confidence interval -6.62 to 5.22) at 12 months; or dietary fat intake scores, mean difference 1.60 (85% confidence interval -2.90 to 6.10) at six months and mean difference 0.20 (95% confidence interval -4.08 to 4.48) at 12 months. There is some limited evidence to suggest that self-management education may improve knowledge in patients with cystic fibrosis but not in parents or caregivers. There is also some limited evidence to suggest that self-management education may result in positively changing a small number of behaviours in both patients and caregivers.

Authors' conclusions

The available evidence from this review is of insufficient quantity and quality to draw any firm conclusions about the effects of self-management education for cystic fibrosis. Further trials are needed to investigate the effects of self-management education on a range of clinical and behavioural outcomes in children, adolescents and adults with cystic fibrosis and their caregivers.

Plain language summary

Self-management education for cystic fibrosis

We set out to review the effects of self-management education for cystic fibrosis on a range of health outcomes in individuals of all ages with cystic fibrosis and their caregivers. Our search for available evidence identified four trials, and all four compared a form of self-management education to standard treatment. The precise focus of self management differed between trials and included a training programme for managing cystic fibrosis, education on chest treatments, education on nutrition specific to cystic fibrosis, and education on general and disease-specific nutrition. Self-management education had no positive effects on lung function, weight, or intake of fatty food. There is some evidence to suggest that self-management education

improves knowledge about cystic fibrosis and its management in patients with this condition and some self-management behaviours in patients and caregivers. However, due to the small number of trials in this review, and because of concerns about the quality of these trials, we are unable to reach any firm conclusions about the effects of self-management education for cystic fibrosis. We recommend that further trials are conducted to evaluate the effects of self-management education interventions.

<http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD007641.pub2/abstract>

Telehealthcare for chronic obstructive pulmonary disease

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Abstract

Background

Chronic obstructive pulmonary disease (COPD) is a disease of irreversible airways obstruction in which patients often suffer exacerbations. Sometimes these exacerbations need hospital care: telehealthcare has the potential to reduce admission to hospital when used to administer care to the patient from within their own home.

Objectives

To review the effectiveness of telehealthcare for COPD compared with usual face-to-face care.

Search strategy

We searched the Cochrane Airways Group Specialised Register, which is derived from systematic searches of the Cochrane Central Register of Controlled Trials (CENTRAL), MEDLINE, EMBASE, CINAHL, AMED, and PsycINFO; last searched January 2010.

Selection criteria

We selected randomised controlled trials which assessed telehealthcare, defined as follows: healthcare at a distance, involving the communication of data from the patient to the health carer, usually a doctor or nurse, who then processes the information and responds with feedback regarding the management of the illness. The primary outcomes considered were: number of exacerbations, quality of life as recorded by the St George's Respiratory Questionnaire, hospitalisations, emergency department visits and deaths.

Data collection and analysis

Two authors independently selected trials for inclusion and extracted data. We combined data into forest plots using fixed-effects modelling as heterogeneity was low ($I^2 < 40\%$).

Main results

Ten trials met the inclusion criteria. Telehealthcare was assessed as part of a complex intervention, including nurse case management and other interventions. Telehealthcare was associated with a clinically significant increase in quality of life in two trials with 253 participants (mean difference -6.57 (95% confidence interval (CI) -13.62 to 0.48); minimum clinically significant difference is a change of -4.0), but the confidence interval was wide. Telehealthcare showed a significant reduction in the number of patients with one or more emergency department attendances over 12 months; odds ratio (OR) 0.27 (95% CI 0.11 to 0.66) in three trials with 449 participants, and the OR of having one or more admissions to hospital over 12 months was 0.46 (95% CI 0.33 to 0.65) in six trials with 604 participants. There was no significant difference in the OR for deaths over 12 months for the telehealthcare group as compared to the usual care group in three trials with 503 participants; OR 1.05 (95% CI 0.63 to 1.75).

Authors' conclusions

Telehealthcare in COPD appears to have a possible impact on the quality of life of patients and the number of times patients attend the emergency department and the hospital. However, further research is needed to clarify precisely its role since the trials included telehealthcare as part of more complex packages.

Plain language summary

Telehealthcare for COPD - bronchitis and emphysema

The smoking related diseases of bronchitis and emphysema are now considered under the umbrella term of chronic obstructive pulmonary disease, COPD. This is because they are diseases which leave people breathless and often with a cough and increased phlegm. Such people often have times when their COPD worsens and they cannot "get their breath" and have to go into hospital for treatment. It is very expensive to look after people this way and often they do not want to spend time in hospital but there are few alternatives. Telehealthcare involves using technology such as telephones, video cameras and the Internet to allow people to stay at home and communicate with a nurse or doctor when they have a period of increased breathlessness. The professional can obtain information from the patient to allow them to prescribe treatments and monitor the patient closely without them having to go into hospital or to the emergency department. This study shows that people treated this way do manage to stay out of hospital longer than people treated by conventional systems of care. There are also some data showing that although these systems are expensive to start off with, if they are successful at keeping people out of hospital, then the cost saving from this means that they are cheaper in the long run.

<http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD007718.pub2/abstract>

The effect of adding inhaled corticosteroids to tiotropium and long-acting beta₂-agonists for chronic obstructive pulmonary disease

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Abstract

Background

Long-acting bronchodilators comprising long-acting beta₂-agonists and the anticholinergic agent tiotropium are commonly used, either on their own or in combination, for managing persistent symptoms of chronic obstructive pulmonary disease. Patients with severe chronic obstructive pulmonary disease who are symptomatic and who suffer repeated exacerbations are recommended to add inhaled corticosteroids to their bronchodilator treatment. However, the benefits and risks of adding inhaled corticosteroid to tiotropium and long-acting beta₂-agonists for the treatment of chronic obstructive pulmonary disease are unclear.

Objectives

To assess the relative effects of adding inhaled corticosteroids to tiotropium and long-acting beta₂-agonists treatment in patients with chronic obstructive pulmonary disease.

Search strategy

We searched the Cochrane Airways Group Specialised Register of trials (February 2011) and reference lists of articles.

Selection criteria

We included parallel group, randomised controlled trials of three months or longer comparing inhaled corticosteroid and long-acting beta₂-agonist combination therapy in addition to inhaled tiotropium against tiotropium and long-acting beta₂-agonist treatment for patients with chronic obstructive pulmonary disease (COPD).

Data collection and analysis

Two review authors independently assessed trials for inclusion and then extracted data on trial quality and the outcome results. We contacted study authors for additional information. We collected information on adverse effects from the trials.

Main results

One trial (293 patients) was identified comparing tiotropium in addition to inhaled corticosteroid and long-acting beta₂-agonist combination therapy to tiotropium plus long-acting beta₂-agonist. The study was of good methodological quality, however it suffered from high and uneven withdrawal rates between the treatment arms. There is currently insufficient evidence to know how much difference the addition of inhaled corticosteroids makes to people who are taking tiotropium and a long-acting beta₂-agonist for COPD.

Authors' conclusions

The relative efficacy and safety of adding inhaled corticosteroid to tiotropium and a long-acting beta₂-agonist for chronic obstructive pulmonary disease patients remains uncertain and additional trials are required to answer this question.

Plain language summary

The effect of adding inhaled corticosteroids to tiotropium and long-acting beta2-agonists for managing chronic obstructive pulmonary disease

Chronic obstructive pulmonary disease (COPD) is a lung disease which includes the conditions chronic bronchitis and emphysema. COPD is characterised by blockage or narrowing of the airways. The symptoms include breathlessness and a chronic cough. COPD is an irreversible disease that is usually brought on by airway irritants, such as smoking or inhaled dust.

Long-acting beta2-agonists and tiotropium are two types of inhaled medications that help widen the airways (bronchodilators) for up to 12 to 24 hours. These bronchodilators are commonly used to manage persistent symptoms of COPD. They can be used in combination or on their own. Patients with severe COPD who suffer ongoing worsening of symptoms are recommended to add anti-inflammatory inhaled corticosteroids to their bronchodilator treatment. However, the benefits and risks of adding inhaled corticosteroid to tiotropium and long-acting beta2-agonists for the treatment of COPD are unclear.

This review found one study, involving 293 patients, comparing the long-term efficacy and side effects of combining inhaled corticosteroid with tiotropium and a long-acting beta2-agonist. In this study there were not enough patients for us to be able to draw any firm conclusions as to whether combining inhaled corticosteroid with tiotropium and the long-acting beta2-agonist is better or worse than using only tiotropium and the long-acting beta2-agonist. More long-term studies need to be done in order to better understand the effect of treatment with inhaled corticosteroid, tiotropium and a long-acting beta2-agonist.

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