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[Intervention Review]

Personalised asthma action plans for adults with asthma

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ABSTRACT

Background

A key aim of asthma care is to empower each person to take control of his or her own condition. A personalised asthma action plan (PAAP), also known as a written action plan, an individualised action plan, or a self-management action plan, contributes to this endeavour. A PAAP includes individualised self-management instructions devised collaboratively with the patient to help maintain asthma control and regain control in the event of an exacerbation. A PAAP includes baseline characteristics (such as lung function), maintenance medication and instructions on how to respond to increasing symptoms and when to seek medical help.

Objectives

To evaluate the effectiveness of PAAPs used alone or in combination with education, for patient-reported outcomes, resource use and safety among adults with asthma.

Search methods

We searched the Cochrane Airways Group Specialised Register of trials, clinical trial registers, reference lists of included studies and review articles, and relevant manufacturers' websites up to 14 September 2016.

Selection criteria

We included parallel randomised controlled trials (RCTs), both blinded and unblinded, that evaluated written PAAPs in adults with asthma. Included studies compared PAAP alone versus no PAAP, and/or PAAP plus education versus education alone.

Data collection and analysis

Two review authors independently extracted study characteristics and outcome data and assessed risk of bias for each included study. Primary outcomes were number of participants reporting at least one exacerbation requiring an emergency department (ED) visit or hospitalisation, asthma symptom scores on a validated scale and adverse events (all causes). Secondary outcomes were quality of life measured on a validated scale, number of participants reporting at least one exacerbation requiring systemic corticosteroids, respiratory function and days lost from work or study. We used a random-effects model for all analyses and standard Cochrane methods throughout.



Main results

We identified 15 studies described in 27 articles that met our inclusion criteria. These 15 included studies randomised a total of 3062 participants (PAAP vs no PAAP: 2602 participants; PAAP plus education vs education alone: 460 participants). Ten studies (eight PAAP vs no PAAP; two PAAP plus education vs education alone) provided outcome data that contributed to quantitative analyses. The overall quality of evidence was rated as low or very low.

Fourteen studies lasted six months or longer, and the remaining study lasted for 14 weeks. When reported, mean age ranged from 22 to 49 years and asthma severity ranged from mild to severe/high risk.

PAAP alone compared with no PAAP

Results showed no clear benefit or harm associated with PAAPs in terms of the number of participants requiring an ED visit or hospitalisation for an exacerbation (odds ratio (OR) 0.75, 95% confidence interval (CI) 0.45 to 1.24; 1385 participants; five studies; low-quality evidence), change from baseline in asthma symptoms (mean difference (MD) -0.16, 95% CI -0.25 to -0.07; 141 participants; one study; low-quality evidence) or the number of serious adverse events, including death (OR 3.26, 95% CI 0.33 to 32.21; 125 participants; one study; very low-quality evidence). Data revealed a statistically significant improvement in quality of life scores for those receiving PAAP compared with no PAAP (MD 0.18, 95% CI 0.05 to 0.30; 441 participants; three studies; low-quality evidence), but this was below the threshold for a minimum clinically important difference (MCID). Results also showed no clear benefit or harm associated with PAAPs on the number of participants reporting at least one exacerbation requiring oral corticosteroids (OR 1.45, 95% CI 0.84 to 2.48; 1136 participants; three studies; very low-quality evidence) nor on respiratory function (change from baseline forced expiratory volume in one second (FEV₁): MD -0.04 L, 95% CI -0.25L to 0.17 L; 392 participants; three studies; low-quality evidence). In one study, PAAPs were associated with significantly fewer days lost from work or study (MD -6.20, 95% CI -7.32 to -5.08; 74 participants; low-quality evidence).

PAAP plus education compared with education alone

Results showed no clear benefit or harm associated with adding a PAAP to education in terms of the number of participants requiring an ED visit or hospitalisation for an exacerbation (OR 1.08, 95% CI 0.27 to 4.32; 70 participants; one study; very low-quality evidence), change from baseline in asthma symptoms (MD -0.10, 95% CI -0.54 to 0.34; 70 participants; one study; low-quality evidence), change in quality of life scores from baseline (MD 0.13, 95% CI -0.13 to 0.39; 174 participants; one study; low-quality evidence) and number of participants requiring oral corticosteroids for an exacerbation (OR 0.28, 95% CI 0.07 to 1.12; 70 participants; one study; very low-quality evidence). No studies reported serious adverse events, respiratory function or days lost from work or study.

Authors' conclusions

Analysis of available studies was limited by variable reporting of primary and secondary outcomes; therefore, it is difficult to draw firm conclusions related to the effectiveness of PAAPs in the management of adult asthma. We found no evidence from randomised controlled trials of additional benefit or harm associated with use of PAAP versus no PAAP, or PAAP plus education versus education alone, but we considered the quality of the evidence to be low or very low, meaning that we cannot be confident in the magnitude or direction of reported treatment effects. In the context of this caveat, we found no observable effect on the primary outcomes of hospital attendance with an asthma exacerbation, asthma symptom scores or adverse events. We recommend further research with a particular focus on key patient-relevant outcomes, including exacerbation frequency and quality of life, in a broad spectrum of adults, including those over 60 years of age.

PLAIN LANGUAGE SUMMARY

Written and personalised action plans to help adults manage their asthma

Review question

People with asthma may be given a written personalised action plan for managing their asthma. This plan provides information on which medicines they should take and when. Other people may be given education on how they should look after their asthma. This review set out to see if using a plan on its own or with education helps improve outcomes for people with asthma.

Background

Asthma is a disease that affects the lungs, which can make it difficult for people to breathe. Some people can manage their asthma very well, and it does not affect them very much, but for other people, asthma can change and sometimes can get worse very quickly and often. When this happens, people may go to see their doctor or may go to the hospital. When their asthma gets worse, people can take medicines or can change the amount of medicine they take to make their asthma better. To know when and how they should change their medicines, adults with asthma can be given a written plan that is designed just for them. This is called a personalised asthma action plan (PAAP). The PAAP will tell people when they need to see their doctor and may include education on how they should manage their asthma.

Study characteristics



We searched for studies up to September 2016. We found 15 studies that provided the information we were looking for in conducting this review. A total of 3062 people had taken part in these studies; 2602 people took part in 11 studies looking at PAAP versus no PAAP, and 460 people were included in four studies looking at PAAP and education versus just education. Fourteen studies lasted six months or longer. The average age of people in these studies ranged from 22 to 49 years. Asthma severity ranged from mild to severe. We were able to use data from 10 of these 15 studies to inform our findings.

Key results

<u>PAAP alone compared with no PAAP</u>: People using a PAAP did not show any difference (good or bad) in terms of having to go to the hospital because their asthma worsened compared with people not using a PAAP. This result was the same for changes in asthma symptom scores and number of deaths due to asthma. People with a PAAP showed no improvement in their quality of life compared with those without a PAAP, but the difference was not large enough to be meaningful.

<u>PAAP plus education compared with education alone</u>: Review authors found no real difference - good or bad - between people using a PAAP and education and those just receiving education. This finding was the same for all outcomes, that is, having to go to the hospital because their asthma worsened and changes in symptom scores and quality of life.

Quality of the evidence

We rated the quality of the 15 included studies as low or very low because the few studies included in this review had problems with study design, including how to enrol people into the study and how to handle missing data for some people. Also, studies had problems with how outcome data for those who did not finish the study should be managed. This means that as future studies are completed and added to future versions of this review, the findings of the review may change.