



Adults with Asthma Breathing Exercise Improvements in Psychological Well-Being

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Introduction

Subjects were randomised to either breathing training or control groups. Study attendances for both groups consisted of three sessions, initial minute's small group session followed by two individual sessions of few minutes with few weeks between attendances. In the breathing training group, explanation of normal breathing and possible effects of abnormal dysfunctional breathing such as over-breathing, mouth breathing and upper chest breathing was provided [1]. In individual sessions, subjects were taught appropriate regular diaphragmatic and nasal breathing techniques and encouraged to practise these exercises for at least few minutes each day. We controlled for non-specific effects of professional attention by allocating similar sessions with a health professional delivering asthma education. This intervention comprised information on the nature of asthma followed by individual sessions, presenting broad asthma and autopsy concepts and explaining treatment rationale without providing personalised asthma advice [2]. As we were interested in the immediate and longer-term impact of the intervention, the primary outcome was a comparison between groups of Asthma Quality of Life Questionnaire changes from baseline values measured and independently analysed few months after the intervention. Secondary outcomes were changes in Asthma Control Questionnaire scores, Hospital Anxiety and Depression scores, respiratory physiology, Fraction of exhaled nitric oxide and sputum eosinophila [3]. Within-group comparisons were examined using a paired t test or Wilcoxon test, while between-group comparisons were made using the independent sample t test or the Mann Whitney test. Pearson correlation coefficients assessed association between two continuous variables. Analyses were performed on an intention to treat basis with per protocol sensitivity analyses performed on subjects completing measurements [4]. We also assessed whether the Nijmegen hyperventilation questionnaire score or physiological evidence of hyperventilation influenced the response to breathing retraining. A brief physiotherapist-supervised breathing retraining programme was found to be associated with improvements in the primary outcome above those seen in the control arm at the 6-month assessment [5]. At the early post-intervention assessment, the control group was associated with similar improvements in health status from baseline values to those observed in the breathing training group, these within-group improvements could be explained by spontaneous improvement in symptomatic patients by non-specific trial involvement and professional attention effects, by specific improvements resulting from the control and breathing interventions, or by combinations of these factors [6]. At the 6-month assessment a significant difference was observed between the groups, confirming a specific benefit associated with the breathing programme independent of potentially confounding factors. Controlling for complex interventions is methodologically difficult but it is necessary to provide a comparable control procedure that is credible and acceptable to patients as, without an adequate control process, it cannot safely be assumed that resulting clinical benefits relate to specific factors in the intervention rather than to spontaneous improvements, the effects of trial involvement or non-specific placebo-like effects resulting from attention from a

healthcare professional [7]. A recent study investigating a similar breathing modification programme against a comparison control group receiving usual care reported improved asthma-related health status, symptoms and mood in adult patients with asthma undergoing breathing training, with little change in the control group. However, it is well established that professional attention of itself can result in beneficial non-specific placebo-like effects, and it has previously been suggested that breathing exercises are in effect an elaborate placebo [8]. The present study therefore aimed to provide a neutral control by giving the subjects randomised to the control arm equal time with a healthcare professional in a similar environment [9]. The nurse provided generic non-personalised asthma information without changing medication or providing personalised self-management advice but, in the context of this study, the control group was associated with improvements from baseline in all patient-centred outcomes and, indeed, a small but statistically significant reduction in Fraction of exhaled nitric oxide concentrations implying a possible reduction in airways inflammation. The provision of a personalised asthma action plan including asthma education has been shown to improve outcomes, although little effect has previously been reported from limited information provision alone. In view of the improvement in health status from baseline in this group and the lack of any suggestion that educational initiatives may result in a deterioration in health status, it is very unlikely that the between-group difference noted was a result of a negative effect in the control arm; indeed, it is possible that the effects of Breathing training are underestimated because of a beneficial effect of the educational programme. Future studies should investigate whether benefits from education and breathing exercises may be additional and synergistic.

Acknowledgement

None

Conflict of Interest

None

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