Weight loss in obese patients with asthma improved lung function and health status

Stenius-Aarniala B, Poussa T, Kvarnström J, et al. **Immediate and long term effects of weight reduction in obese people with asthma: randomised controlled study.** BMJ. 2000 Mar 25;320:827-32.

QUESTION

In obese patients with asthma, does weight loss improve lung function and health status and alleviate symptoms?

DESIGN

Randomized (allocation concealed*), unblinded,* controlled trial with 1-year follow-up.

SETTING

Outpatient clinic in Helsinki, Finland.

PATIENTS

38 patients who were 18 to 60 years of age (mean age 49 y, 76% women), had a body mass index of 30 to 42, had asthma with a spontaneous diurnal variation or a bronchodilator response of ≥ 15%, and were nonsmokers. Exclusion criteria were pregnancy; history of bulimia or anorexia; other severe disease, including heart, thyroid, liver, or gallbladder disorders; insulin or systemic steroid treatment; or history of food allergy or intolerance to any element of the intervention diet. Follow-up was complete.

INTERVENTION

Patients were allocated to a weight-loss group (n = 19) or a control group (n = 19). The weight-reduction program included 12 group-therapy sessions in 14 weeks, including an 8-week dieting period in which patients took a very low-energy dietary preparation (Nutrilett, Nycomed Pharma, Oslo, Norway) that provided 1760 kJ of energy per day. Control-group patients had nonspecific group sessions that included education about asthma and allergy and were held at the same times as those of the weight-loss group.

MAIN OUTCOME MEASURES

Change in body weight, peak expiratory flow (PEF), FEV_1, forced vital capacity (FVC), asthma symptoms, and health status.

MAIN RESULTS

Patients in the weight-loss group lost a mean of 14.2 kg and 11.1 kg at program's end and 1 year, respectively, compared with a loss of 0.3 kg and a gain of 2.3 kg, respectively, in the control group. The groups did not differ for change in PEF at any point during follow-up ($P \geq 0.06$), but patients in the weight-loss group had greater increases than did control-group patients for FEV_1 and FVC at all follow-up time points ($P \leq 0.02$) (1-y results are in the Table). At program's end, the weight-loss group had greater reductions in dyspnea and use of rescue medication, but the difference did not reach statistical significance by 1 year. Patients in the weight-loss group had greater improvement in overall health status than did control-group patients (P = 0.02).

CONCLUSION

In obese patients with asthma, weight loss improved lung function and health status.

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For correspondence: Dr. B. Stenius-Aarniala, Department of Medicine, University Central Hospital, PL 340 Helsinki, FIN-00029 HYKS, Finland.

*See Glossary.

Weight loss vs control for obese patients with asthma to improve lung function (% of predicted) at 1 year†

Lung function tests	Mean change in weight-loss group	Mean change in control group	Difference (95% CI)
PEF (% of predicted)	5.6	−0.6	6.2 (−1.4 to 13.7)‡
FEV_1 (% of predicted)	4.9	−2.7	7.6 (1.5 to 13.8)
FVC (% of predicted)	2.0	−5.6	7.6 (3.5 to 11.8)

†FVC = forced vital capacity; PEF = peak expiratory flow.
‡Difference is not significant.

COMMENTARY

The role of weight loss in improving the quality of life of persons with asthma has not been extensively studied. Thus, the study by Stenius-Aarniala and colleagues of 38 patients from a hospital outpatient setting provides useful insight into the value of intensive weight reduction. However, several issues that affect the external validity of the study need to be discussed, and the hospital outpatient setting of the study raises concerns about the generalizability of the results to primary care.

The results of this study suggest that overweight persons with asthma may benefit from the combination of weight reduction and optimal pharmacologic management. It is well known, however, that the problem with intense interventions in patients with asthma is sustainability, which raises doubts about the long-term effects of this type of intervention. Statistically significant differences existed between the control and intervention groups, but their clinical relevance remains unclear. The changes in PEF, FEV_1, and FVC in the intervention group were small. If the health status measures are examined in detail, the only items that increased to a statistically significant extent were overall score and symptom control, whereas activity and social and psychological effects did not. Patient time and the cost of the commitment to such an intensive program were not considered. Further studies are needed to explore these concerns in detail.

Justin Beilby, MBBS, MD, MPH
University of Adelaide
Adelaide, South Australia, Australia

