

Täiskasvanute astma käsitlemine esmatasandil

Tõendusmaterjali kokkuvõte

Kliiniline küsimus nr 3a

Kliinilise küsimuse tekst: Kas astma diagnoosiga patsiente tuleks nõustada järgmistel teemadel:
a. ülekaalulistel kaalu alandamine vs mittealandamine

Kokkuvõtte, sh kriitiliste tulemusnäitajate kaupa:

Cochrane andmebaasi 2012. a süstemaatilises ülevaates ([Adeniyi 2012](#)) hinnati kaalulangetamise mõju astmale ning leiti vaid madala kvaliteediga tõendusmaterjali, mis ei lubanud teha kindlaid järeldusi.

Neid tulemusnäitajaid ei olnud võimalik korrektselt hinnata:

Elukvaliteet

Astma ägenemine

Suremus (astmast tingitud või olenemata põhjusest e *all-cause mortality*)

Päevaste sümptomite esinemine

Öösümptomid/unehäired

Hooravi vajadus

Hospitaliseerimine (olenemata põhjusest)

Ravi katkestamine kõrvaltoime tõttu

Füüsilise aktiivsuse piiratus

Ravikulu

Lisaks ilmus 2013. a teemakohane süstemaatiline ülevaade ([Moreira 2013](#)), mille järelduseks on:
The available studies show weak evidence of benefits from weight reduction on asthma outcomes.

Peale süstemaatilistesse ülevaadetesse hõlmatud uuringuid on ilmunud 2 teemakohast RCT, mille kvaliteet on madal.

1) [Scott 2013](#) – üsna väikesemahuline RCT hõlmas 46 uuritavat, võrreldi dieet vs kehalise aktiivsuse vs dieet+kehaline aktiivsus. Lihtsalt kontrollgruppi ei olnud. Jälgimisperiood 10 nädalat, väljalangemine 17,4%. Keskmine kaalulangus $8,5 \pm 4,2\%$. Astma kontrolli hinnati küsimustike abil ning nende alusel astma kontroll paranes kõigis rühmades.

2) [Jensen 2013](#) – lapsi hõlmav uuring, pilootuuring kestusega 10 nädalat, mis hõlmas 28 last, dieet vs kontrollrühm. Astma kontrolli hinnati küsimustike abil ning nende alusel astma kontroll interventsioonirühmas paranes

Ravijuhendid

Kokkuvõtte ravijuhendites leiduvatest soovistest:

a) need juhendid, mis käsitlevad ülekaalulistel kaalu alandamist vs mittealandamist, soovivad kaalulangetamist, kuna sellega seoses väheneb astmaatilistel astma sümptomite esinemine. (Evidence B) (leidud üks [randomiseeritud uuring](#), SIGN)

Viited süstemaatilistele ülevaadetele

Abstract

BACKGROUND:

Asthma and obesity are both public health problems with increasing prevalence globally. Several epidemiological studies have shown an

[Cochrane Database Syst](#)

[Rev.](#) 2012 Jul

11;7:CD009339. doi:

10.1002/14651858.CD00

9339.pub2.

Weight loss interventions for chronic asthma.

association between asthma and obesity, however there is no good quality evidence on the effect of weight loss on asthma control.

OBJECTIVES:

To assess the effect of various interventions for weight loss on measures of asthma control and weight loss amongst overweight or obese patients with chronic asthma.

SEARCH METHODS:

up to March 2012.

SELECTION CRITERIA:

We included randomized controlled trials (RCTs) of weight loss interventions for overweight or obese participants with asthma compared to either no intervention for weight loss or an alternative weight loss intervention.

MAIN RESULTS:

We included four completed studies conducted amongst adults (n = 197). Two were published as abstracts, and two as full articles. Interventions included supervised physical activity, low calorie diet and anti-obesity drugs (singly or in combination), and were compared to usual care (two studies), low calorie diet (one study), while one study had three intervention arms (physical activity versus low calorie diet versus a combination of the two). Two studies were conducted in high-income countries, while two were conducted in upper, middle-income countries. All studies had an unclear risk of selection and a high risk of detection bias. One of the studies found a statistically significant reduction in symptoms scores in treatment compared to control groups: the difference between groups in total St. George's Respiratory Questionnaire (SGRQ) score was -10 units (95% CI -18 to -1; P = 0.02). One study showed reduction in doses of rescue medication in treatment compared with control groups in the short term. Weight loss was associated with some improvement in forced expiratory volume in 1 second (FEV1) and forced vital capacity (FVC) in one study, which was statistically significant, but clinically unimportant; there was no improvement in peak expiratory flow rate (PEFR). No data were reported on health care utilization and adverse effects. One study reported statistically significant weight loss in the treatment group compared to controls with no intervention, which was still significant at one year follow-up.

AUTHORS' CONCLUSIONS:

This review found one randomized trial that showed that weight loss may be beneficial for improving asthma control in overweight and obese patients, in conjunction with weight loss in intervention groups in the short term. Applying the GRADE system to the results of this review however, shows that the quality of evidence is low, because although all four studies are RCTs there were serious methodological limitations in the studies (unclear risk of selection bias and high risk of detection bias) and imprecision (small sample size). There is inadequate evidence to comment on the effect of weight loss interventions on quality of life and health care utilization. In addition, there was inadequate reporting of data

Adeniyi FB, Young T.

<http://www.ncbi.nlm.nih.gov/pubmed/22786526>

<p>on adverse effects to permit proper balancing of harms and benefits of the interventions. On account of this low quality of evidence, the benefit of weight loss as an intervention for asthma control remains uncertain, and as such, clinicians should be prepared to help patients to make a decision that is consistent with their own values. Implications for research The finding that most of the included studies were of low methodological quality highlights the need for further well designed RCTs, with emphasis on adequate methods of allocation sequence generation as well as allocation concealment and longer follow-up periods. These studies need to report more fully on relevant outcomes (both statistically significant and otherwise) such as: asthma symptoms/control, use of rescue medication, change in lung function parameters (actual mean/median values), hospital utilization, quality of life, and adverse effects. There is also a need for longer intervention as well as follow-up durations to evaluate the effect of sustained measures to achieve weight loss, and to determine if these effects are still significantly present after a considerable period of time. There is also a need for these well designed studies in children and adolescents, as well as in low-income countries such as Africa, where the prepackaged, low energy diets, as well as structured physical activity-based interventions utilized in these included studies, may not be feasible or applicable.</p>	
<p>BACKGROUND:</p> <p>Asthma and obesity are chronic multifactorial conditions that are associated with gene-environment interaction and immune function. Although the data are not fully consistent, it seems that obesity increases the risk of asthma and compromises asthma control.</p> <p>OBJECTIVE:</p> <p>To investigate the impact that weight changes have on asthma.</p> <p>METHODS:</p> <p>We carried out a systematic review of three large biomedical databases. Studies were scrutinized and critically appraised according to agreed exclusion and inclusion criteria. Quality assessment of eligible papers was conducted using the GRADE method. Meta-analyses of comparable studies were carried out.</p> <p>Otsing viidi läbi detsembrids 2011 (s.o varasem, kui 2012 a. Cochrane süstemaatilise ülevaate tähtaeg)</p> <p>RESULTS:</p> <p>Thirty studies met the eligibility criteria of the review. Interventions were limited to dietary manipulation in three studies, one of which also used anti-obesity drugs, and bariatric surgery in four. All the other studies reported observational data. Becoming obese increased the odds for incident asthma by 1.82 (95% CI 1.47, 2.25) in adults and 1.98 (95% CI 0.71, 5.52) in children. Weight loss was associated with significant improvement in mean scores for symptoms, rescue medication score, and asthma exacerbations in the only randomized controlled trial. Similarly, evidence gathered from observational studies, with follow-up ranging</p>	<p>Allergy. 2013 Apr;68(4):425-39. doi: 10.1111/all.12106. Epub 2013 Mar 1.</p> <p>Weight loss interventions in asthma: EAACI evidence-based clinical practice guideline (part I).</p> <p>Moreira A1, Bonini M, Garcia-Larsen V, Bonini S, Del Giacco SR, Agache I, Fonseca J, Papadopoulos NG, Carlsen KH, Delgado L, Haahtela T.</p> <p>http://www.ncbi.nlm.nih.gov/pubmed/23452010</p>

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<p>between 8 weeks to 1 year, and from changes 1 year after bariatric surgery showed improvements in all asthma control-related outcomes. Changes in lung function were reported in one randomized controlled and eight observational studies of asthmatic subjects, with conflicting results. Either improvement after weight loss, decline with weight gain, or no effects at all were reported. Changes in airway inflammation and responsiveness were reported only by observational studies.</p> <p>CONCLUSION:</p> <p>Weight increases above the obesity threshold significantly increase the risk of asthma. The available studies show weak evidence of benefits from weight reduction on asthma outcomes.</p>	
<p>We performed a systematic review on weight loss and asthma, based on searches between January 1966 and January 2007 of both PubMed and the Cochrane Clinical Trial Database. Of the 15 relevant studies, asthma was the primary outcome in only five. Only one study was conducted in children. Regardless of the type of intervention (surgical vs medical), all 15 studies noted an improvement in at least one asthma outcome after weight loss. The improvement was noted across studies that differed in sample age, gender or country of origin. The heterogeneity of the interventions and outcomes precluded quantitative synthesis.</p>	<p>Thorax. 2008 Aug;63(8):671-6. doi: 10.1136/thx.2007.086470 ·</p> <p>Weight loss and asthma: a systematic review.</p> <p>Eneli IU1, Skybo T, Camargo CA Jr.</p> <p>http://www.ncbi.nlm.nih.gov/pubmed/18663068</p>

Viited RCT

<p>OBJECTIVE: To compare the effects of weight loss achieved by dietary restriction, exercise or combined dietary restriction and exercise on airway inflammation and clinical outcomes in overweight and obese adults with asthma.</p> <p>METHODS: Participants (n = 46; 54.3% female, body mass index (mean \pm SD) 33.7 ± 3.5 kg/m²) were randomized to complete a 10-week dietary, exercise or combined dietary and exercise intervention. Dual-energy x-ray absorptiometry was performed, the Juniper Asthma Control Questionnaire and Juniper Asthma Quality of Life Questionnaire completed and inflammatory markers, dietary intake and physical activity measured. The trial was registered with the Australian Clinical Trials Registry: ACTRN12611000235909.</p> <p>RESULTS: Retention was 82.6%. Mean \pm SD weight loss was $8.5 \pm 4.2\%$, $1.8 \pm 2.6\%$ and $8.3 \pm 4.9\%$ after the dietary, exercise and combined interventions respectively. Asthma control improved after the dietary (mean \pm SD; -0.6 ± 0.5, $P \leq 0.001$) and combined interventions (-0.5 ± 0.7, $P = 0.040$), whereas quality of life improved after the dietary [median (IQR); 0.9 (0.4, 1.3), $P = 0.002$], exercise [0.49 (0.03, 0.78), $P = 0.037$] and combined [0.5 (0.1, 1.0), $P = 0.007$] interventions. A 5-10% weight loss resulted in clinically important improvements to asthma control in 58%, and quality of life in 83%, of subjects. Gynoid adipose tissue reduction was associated with reduced neutrophilic airway inflammation in women [β-coefficient (95% CI); 1.75 (0.02, 3.48), $P = 0.047$], whereas a reduction in dietary saturated fat was associated with reduced neutrophilic airway inflammation in males ($r = 0.775$, $P = 0.041$). The exercise</p>	<p>Clin Exp Allergy. 2013 Jan;43(1):36-49. doi: 10.1111/cea.12004.</p> <p>Dietary restriction and exercise improve airway inflammation and clinical outcomes in overweight and obese asthma: a randomized trial.</p> <p>Scott HA1, Gibson PG, Garg ML, Pretto JJ, Morgan PJ, Callister R, Wood LG.</p> <p>http://www.ncbi.nlm.nih.gov/pubmed/23278879</p>
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<p>intervention resulted in a significant reduction to sputum eosinophils [median (IQR); -1.3 (-2.0, -1.0)%, $P = 0.028$].</p> <p>CONCLUSION AND CLINICAL RELEVANCE: This study suggests a weight-loss goal of 5-10% be recommended to assist in the clinical management of overweight and obese adults with asthma. The obese-asthma phenotype may involve both innate and allergic inflammatory pathways.</p>	
<p>BACKGROUND:</p> <p>Obesity is highly prevalent in asthmatic children and associated with worse clinical outcomes. Energy restriction to induce weight loss in asthmatic children has not been investigated in a randomized controlled trial (RCT).</p> <p>OBJECTIVE:</p> <p>To assess if (1) weight loss can be achieved in obese asthmatic children using a dietary intervention; and (2) changes in asthma outcomes occur following diet-induced weight loss.</p> <p>METHODS:</p> <p>In a 10-week pilot RCT, obese asthmatic children, aged 8-17 years, were randomized to a wait-list control (WLC) ($n = 15$) or dietary-intervention group (DIG) ($n = 13$). Lung function, Asthma Control Questionnaire (ACQ) score, and sputum and systemic inflammation were assessed at baseline and post-intervention. (Australian New Zealand Clinical Trials Registry: ACTRN12610000955011).</p> <p>RESULTS:</p> <p>Body mass index (BMI) z-score reduced significantly in the DIG vs. the WLC (-0.2 [-0.4, -0.1] vs. 0.0 [-0.1, 0.0], $P = 0.014$). Expiratory reserve volume (ERV) increased significantly within the DIG, but not compared to the WLC (0.7 [0.0, 1.0] L vs. 0.3 [0.0, 0.8] L, $P = 0.355$). ACQ improved significantly in the DIG, compared to the WLC (-0.4 [-0.7, 0.0] vs. 0.1 [0.0, 0.6], $P = 0.004$). Airway and systemic inflammation did not change within the DIG. In comparison, C-Reactive Protein (CRP) increased significantly in the WLC (-0.4 [-0.5, 0.4] vs. 0.7 [-0.1, 1.9], $P = 0.037$). Change (Δ) in BMI z-score correlated with ΔCRP ($r = 0.47$, $P = 0.012$) and Δexhaled nitric oxide (eNO) ($r = 0.46$, $P = 0.034$), and ΔACQ was associated with ΔCRP ($r = 0.43$, $P = 0.029$).</p> <p>CONCLUSION AND CLINICAL RELEVANCE:</p> <p>Dietary intervention can induce acute weight loss in obese asthmatic children with subsequent improvements in static lung function and asthma control. Systemic and airway inflammation did not change following weight loss. However, changes in BMI z-score were associated with changes in airway and systemic inflammation and this requires further investigation in a larger RCT. This is the first weight loss RCT conducted in obese asthmatic children. Diet-induced weight loss can achieve</p>	<p>Clin Exp Allergy. 2013 Jul;43(7):775-84. doi: 10.1111/cea.12115.</p> <p>Diet-induced weight loss in obese children with asthma: a randomized controlled trial.</p> <p>Jensen ME¹, Gibson PG, Collins CE, Hilton JM, Wood LG.</p>

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significant improvements in clinical outcomes for obese children with asthma.	
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