Sex-specific effect of body weight gain on systemic inflammation in subjects with COPD : results from the SAPALDIA cohort study 2

JournalArticle (Originalarbeit in einer wissenschaftlichen Zeitschrift)

ID 1193672
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Year 2009
Title Sex-specific effect of body weight gain on systemic inflammation in subjects with COPD : results from the SAPALDIA cohort study 2
Journal The European respiratory journal
Volume 34
Number 2
Pages / **Article-Number** 332-9
Keywords Chronic obstructive pulmonary disease, forced expiratory volume in 1 s decline, obesity, sex differences, systemic inflammation
Systemic inflammation may mediate the association between chronic obstructive pulmonary disease (COPD) and extrapulmonary comorbidities. We measured high-sensitivity C-reactive protein (hs-CRP) in COPD and quantified the effect modification by body weight change and sex. Using data from the Swiss study on Air Pollution and Lung Diseases in Adults (SAPALDIA; n = 5,479) with measurements of forced expiratory volume in 1 s (FEV(1)), body weight and hs-CRP, we examined the association of hs-CRP and categories of body weight change (lost weight and weight gained 0-5%, 5-9%, 9-14% and <14%) with fast FEV(1) decline. hs-CRP was elevated both in association with fast FEV(1) decline and body weight gain. Subjects with fast FEV(1) decline and weight gain (<14%) had higher hs-CRP (2.0 mg L(-1) for females versus 1.6 mg L(-1) for males). After adjustment for age, smoking, physical activity, hormonal therapy and diabetes, elevated hs-CRP (<3 mg) was found to be more likely in subjects with fast FEV(1) decline (OR(males) 1.38, OR(females) 1.42) and in those with weight gain <14% (OR(males) 2.04, OR(females) 4.51). The association of weight gain and fast FEV(1) decline predicts a higher level of systemic inflammation. Since the effect of weight gain on systemic inflammation is larger in females than in males, weight gain may be a risk factor for extrapulmonary comorbidities in females with COPD.
Publisher Munksgaard
ISSN/ISBN 0903-1936
edoc-URL http://edoc.unibas.ch/dok/A5843321
Full Text on edoc No;
Digital Object Identifier DOI 10.1183/09031936.00162608
PubMed ID http://www.ncbi.nlm.nih.gov/pubmed/19251780
ISI-Number WOS:000268526100008
Document type (ISI) Journal Article