Gender-Difference In Association Between Selenium And Asthma

Øyvind Omland[1,2], Tine H Malling[3], Yoji Deguchi[4], and the RAV group.
[1]Department of Occupational Medicine, Aalborg Hospital, Århus University Hospital, Aalborg, Denmark;
[2]Institute of Public Health, University of Århus, Århus, Denmark. [3]Department of Occupational Medicine, Aarhus Hospital, Aarhus, Denmark; and [4]School of Nursing, Faculty of Medical Sciences, University of Fukui, Japan.

Risikofaktorer for Astma hos Voksne

Aim:

To analyse associations between serum selenium and asthma including analyses in the genders separately.

Methods:

Study population:
In a cross-sectional Danish multicenter-study of asthma (ECRHS protocol) 1,191 subjects aged 20-44 years were enrolled .

Cases of asthma was defined as (n=131):
Positive answer to at least one of the following questions (current asthma):

- "Have you been woken by an attack of shortness of breath at any time in the last 12 months?".
- "Have you had an attack of asthma in the last 12 months?"
- "Are you currently taking any medicine (including inhalers, aerosols or tablets) for asthma?".

In combination with bronchial hyperresponsiveness (BHR).

- BHR: 20% decrease in FEV^1 at methacholine challenge, cumulative dose 2 mg

Controls was defined as (n=619):
Randomly selected subjects without positive answer to any of the above mentioned questions.

Selenium:
Analyses of selenium in serum used the AOAC (Association of Official Analytical Chemists) modified fluometric method validated for investigations of selenium in organic material.

Smoking:
Self-reported information on current, former, or never smoking, where distinction between current and former smokers was one month prior to examination.

Atopy:
At least 1 of 13 positive skin prick test mean diameter ≥ 3mm

Table 1. Characteristics of study population n=750

	Female	Male
Mean age, years (SD)	34.4 (7.2)	35.0 (6.9)
Current asthma, n (%)	77 (20)	54 (15)
BHR, n (%)	132 (34)	74 (20)
Selenium, µg/l (SD)	82.4 (11.6)	84.0 (11.4)
Atopy, n (%)	125 (32)	148 (41)
Smoking		
Never, n (%)	208 (54)	219 (60)
Former, n (%)	66 (17)	48 (13)
Current, n (%)	110 (29)	98 (27)

Results:

Demographic data for study population is shown in table 1.

Selenium was insignificantly lower in females compared to males (p=0.05)

Selenium was inversely associated to current asthma with BHR in females (figure 1), difference 3.1 µg/l (95 % CI: 0.2- 6.0, p=0.04). Adjusted for age, smoking, atopy, and study center the difference was 4.1 µg/l (95 % CI: 1.0 - 7.2, p=0.009).

No association between asthma and selenium in males

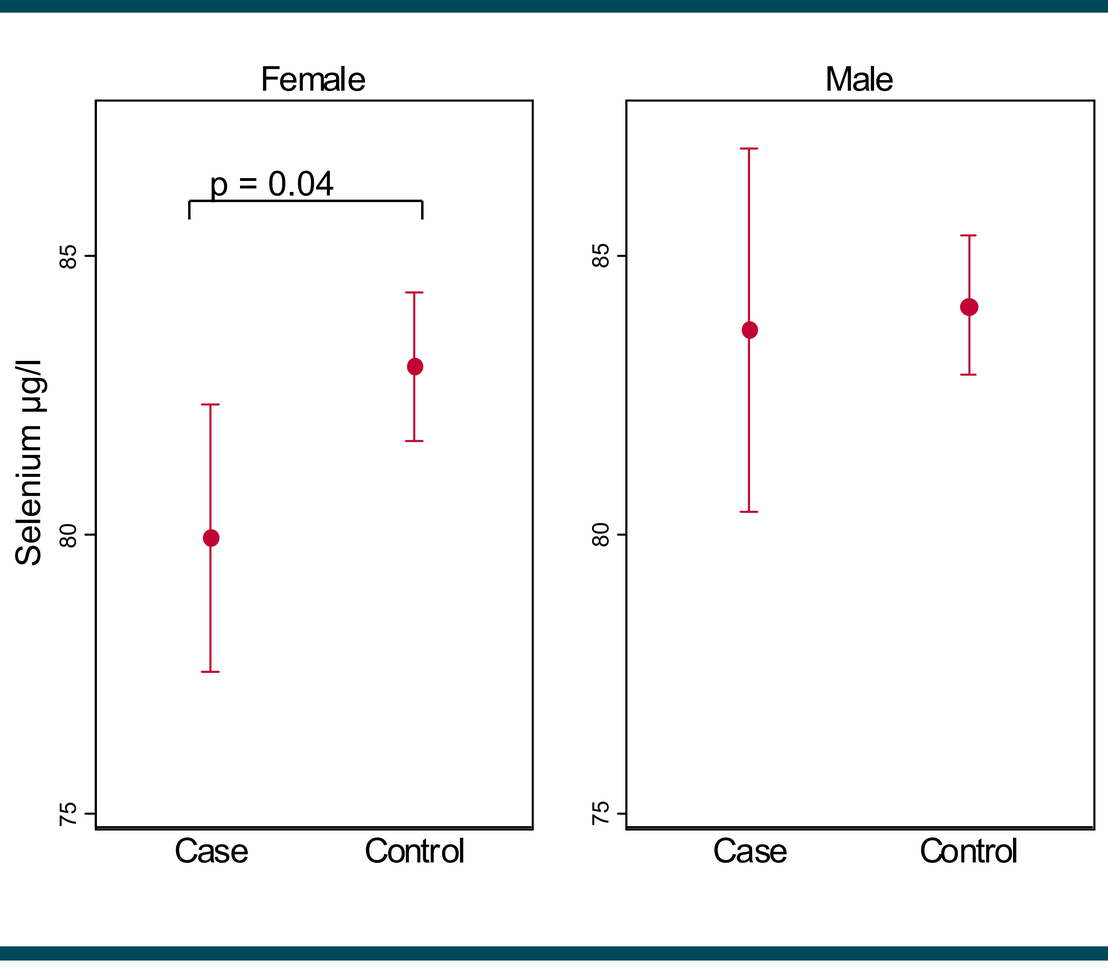

Figure 1 Unadjusted serum selenium concentration (µg/l, mean and 95% CI) in asthmatic and non-asthmatic males and females.

Conclusion:

Serum selenium concentration was inversely associated to asthma in young Danish females, but no association was seen in males.

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