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Anticitrullinated peptide antibodies (ACPA) in the serum of heavy smokers without arthritis - a differential role of associated pulmonary disease?

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Background
An increased risk of RA has been described in smokers, but only in ACPA-positive RA patients. The frequency of ACPA in serum of heavy smokers is not known.

Objectives
Analyze the serum frequency and levels of ACPA on heavy smoker subjects, with and without chronic obstructive pulmonary disease (COPD), and compare them with a healthy control group.

Methods
Serum samples of 110 heavy smokers (39% women, 56.9±10 years) were obtained.

Subjects were selected from a Pneumology Service database and from hospital workers. They were compared with 209 healthy controls who had never smoked (51% women, 41.8±12 years). Both groups were tested for two different antibodies against citrullinated proteins, a commercial anti-CCP2 test and a home-made chimeric fibrin/filaggrin citrullinated synthetic peptide (anti-CFFCP).

Their frequency and levels were compared between groups.

Results
Of the 110 heavy smokers, 54 had COPD and 56 were healthy smokers. None had RA. Mean packs-year were 44.3±36 (53±28 in COPD disease and 36±16 in healthy smokers, p<0.01).

Percentage of positive results and mean serum levels of ACPA in all the study groups are shown in Table 1.

The prevalence of positive anti-CFFCP was higher in the heavy smoker group than in non-smokers, although the difference was not significant. The highest prevalence of positive anti-CFFCP was seen in patients with COPD (7.4%); the difference was at the limit of statistical significance compared with the control group (2.4%) (OR:3.26 95% CI:0.85-12.6 p=0.07). Heavy smokers with COPD had significantly higher

Table 1 Frequency of positive autoantibodies and mean serum levels of antibodies in the study groups

	HEAVY SMOKERS			NON SMOKERS
	A TOTAL n=110	B COPD n=54	C NON COPD n=56	D n=209
CFFCP+ (%)	5 (4.5%)	4 (7.4%)[*]	1 (1.7%)	5 (2.4%)[*]
CFFCP mean±SD	0.12±0.06	0.15±0.7[†] [¶]	0.09±0.5[†]	0.10±0.12[¶]
CCP2+ (%)	2 (1.8%)	2 (3.7%)	0 (0%)	4 (1.9%)
CCP2 mean ±SD	15.62±4.25	16.2±5.97[‡]	15.05±0.9[‡]	16.9±2.78

[*]B vs D p=0.07, [†]B vs C p<0.001, [¶]B vs D p=0.02, [‡]B vs C p=0.17.

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levels of both autoantibodies than non-smokers and smokers without COPD.

Conclusion

The prevalence of ACPA in heavy smokers without RA is low, but seems to be higher in heavy smokers with COPD. Larger studies are necessary to confirm these findings and determine the relationship between ACPA and lung disease.

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