CHLAMYDIA TRACHOMATIS & ANTI-MUC1 SEROLOGY & SUBSEQUENT RISK OF HIGH-GRADE SEROUS OVARIAN CANCER

S Jonsson[a], E Lundin[b], F Elgh[c], U Ottander[a], A Idahl[a]

[a] Department of Clinical Sciences, Obstetrics and Gynecology, Umeå University, Sweden.
[b] Department of Medical Biosciences, Pathology, Umeå University, Sweden.
[c] Department of Clinical Microbiology, Umeå University, Sweden.

RESEARCH QUESTION

Is past infection with *Chlamydia trachomatis,* measured by chlamydia serology or anti-MUC1 production, associated with subsequent risk of high-grade serous ovarian cancer?

BACKGROUND

Chlamydia trachomatis (*C. trachomatis*) salpingitis causes inflammatory damage to the fallopian tube and could potentially cause initiation and progression of high-grade serous ovarian cancer (HGSC). Furthermore, *C. trachomatis* infection may stimulate mucin1 (MUC1) protein production, possibly affecting anti-MUC1 antibody levels.

MATERIAL & METHODS

In a prospective nested case-control study within the Northern Sweden Health and Disease Study (NSHDS) and the Northern Sweden Maternity Cohort (NSMC), the prevalence of chlamydial and anti-MUC1 antibodies was analyzed in blood samples drawn more than one year prior to diagnosis from 92 women with HGSC and 359 matched controls. Matching factors were age, date at blood draw and sampling cohort. Plasma *C. trachomatis* IgG was analyzed using commercial MIF-test; chlamydial Heat Shock Protein 60 IgG (cHSP60) and anti-MUC1 IgG were analyzed with ELISA technique.

RESULTS

The prevalence of *C. trachomatis* IgG and cHSP60 IgG antibodies, as well as the level of anti-MUC1 IgG was similar in women with HGSC and controls (16.3% vs. 17.0%, $p = 0.867$; 27.2% vs. 28.5%, $p = 0.802$; median 0.24 vs. 0.25, $p = 0.700$). Anti-MUC1 IgG and cHSP60 IgG levels were correlated (r = 0.169; $p < 0.001$).

Table 1. Prevalence of *Chlamydial trachomatis* IgG, cHSP60 IgG and anti-MUC1 IgG in prospective blood samples in women with high-grade serous ovarian cancer and matched controls.

	Cases			Controls			
	n	n+	% +	n	n+	% +	*p*[a]
Antibodies							
C. trachomtis IgG	92	15	16.3%	358[b]	61	17.0%	*0.87*
cHSP60 IgG[c]	92	25	27.2%	358[b]	102	28.5%	*0.80*
anti-MUC1 IgG[d]	92	11	12.0%	359	24	6.7%	*0.09*

[a]Chi-square test.
[b]One control was not evaluated due to technical problems.
[c]Cut-off for cHSP60 IgG was defined as the mean OD value of the negative control plus 0.350 and results are presented as positive (+) or negative (−).
[d]Cut-off for high anti-MUC1 IgG level was considered as an OD of ≥1.0.

Table 2. Optical density values of cHSP60 and anti-MUC1 antibodies in prospective blood samples in women with high-grade serous ovarian cancer and matched controls.

	Cases			Controls			
	n	Median	(min-max)	n	Median	(min-max)	*p*[a]
Antibodies							
cHSP60 IgG	92	0.53	(0.15-7.80)	358[b]	0.58	(0.01-8.59)	*0.85*
anti-MUC1 IgG	92	0.24	(0.00-2.45)	359	0.25	(0.01-3.67)	*0.70*

[a]Mann-Whitney U test
[b]One control was not evaluated due to technical problems.

CONCLUSIONS

This study did not support an association between *C. trachomatis* infection, as measured by chlamydial serology, or anti-MUC1 IgG antibodies, and subsequent risk of HGSC.

Contact Information: sarah.jonsson@umu.se

UMEÅ UNIVERSITY