



Anti-C1q autoantibodies are linked to autoimmune thyroid disorders in pregnant women.



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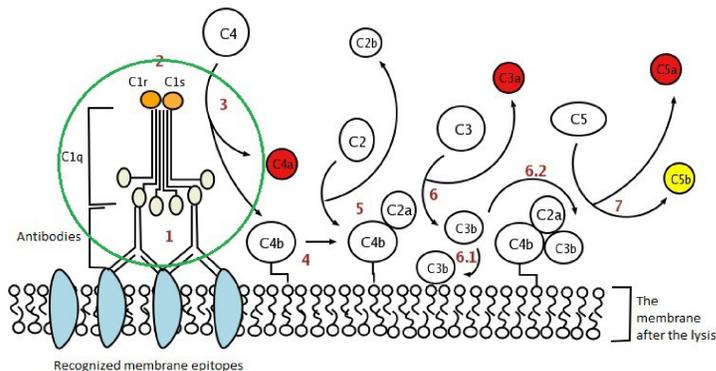
Background

C1q is the first component of the classical pathway of complement activation.

Autoantibodies against C1q (anti-C1q) have been found in a number of autoimmune and infectious diseases. Their prevalence in the general population ranges from 2 to 8 % and seems to increase with age. They have been best described in patients with systemic lupus erythematosus, where they are a reliable marker of proliferative lupus nephritis. We have previously shown that anti-C1q antibodies are also linked to autoimmune thyroid disorders (AITD).

The aim of this study: To assess the occurrence of anti-C1q antibodies in pregnant women with AITD.

The activation of the complement system:



Subjects and methods

- 212 consecutive pregnant women in 9-11th gestational weeks
- 96 serum samples after delivery (median 16 months)
- 2 control groups: A) 80 pregnant women screened negative for AITD in 9-11th gest. week; B) 72 non-pregnant women screened positive for AITD (with three serum samples in time)
- Assessment of anti-C1q by ELISA (Bühlmann Laboratories, Schönepfuhl, Switzerland) and TSH, fT4 and TPOAb by chemiluminescence (ADVIA Centaur Analyzer) during pregnancy and after delivery

Results

Anti-C1q antibodies were higher in pregnant women than in the non-pregnant controls (12.5 vs. 7.6 mU/l, $p=0.0006$). Furthermore, anti-C1q prevalence were higher in pregnant women who were positive for TPOAb than in the pregnant women without thyroid disorders (12.7 vs. 6.5 mU/l; $p<0.0001$) (Fig. 1).

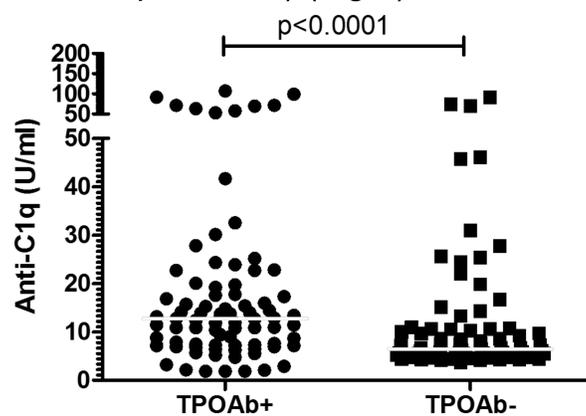


Figure 1. Comparison of serum anti-C1q levels in pregnant women positive and negative for TPOAb.

Similarly, the prevalence of anti-C1q positivity was higher in the TPOAb-positive pregnant women (37.2% vs. 17.5 %, $p=0.006$).

Among pregnant women screened positive for AITD, the anti-C1q positive ones had higher TSH levels than the anti-C1q negative ones (Fig. 2).

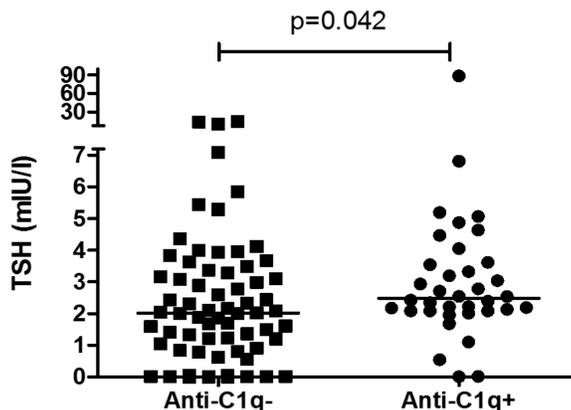


Figure 2. TSH levels in pregnant women according to anti-C1q positivity.

TSH correlated positively with anti-C1q levels in all pregnant women screened positive for AITD ($r=0.20$, $p=0.043$), as well as in the TPOAb-positive subgroup ($r=0.237$, $p=0.027$) Differences in FT4 were not significant.

Serum levels of anti-C1q decreased significantly after delivery (12.6 vs. 9.4 U/l, $p=0.026$) (Fig. 3, Tab. 1) and did not correlate with thyroid parameters at this time point.

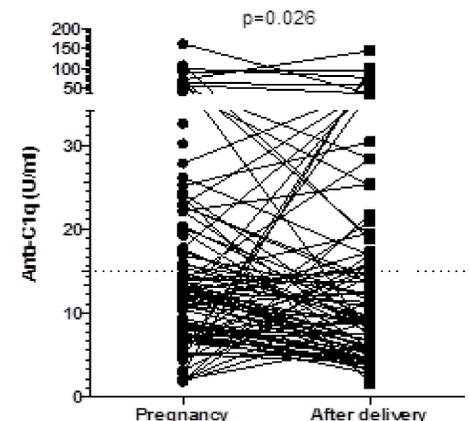


Figure 3. Follow-up of serum anti-C1q levels in time in women positively screened for AITD in pregnancy.

Table 1. Levels of anti-C1q and thyroid parameters in pregnant women positively screened for AITD and their follow-up after delivery.

	Pregnant women	Follow up
Number	103	96
Age (median)	32	32
TSH (mIU/l)	2.22	2.19
fT4 (pmol/l)	13.6	14.4
TPOAb (kU/l)	897	235
Anti-C1q (mU/l)	12.5	9.4

The values are presented as the median. The normal values for pregnancy: TSH 0.06 – 3.67 mIU/l, fT4 9.8 – 23.1 pmol/l, TPOAb < 143 kU/l, anti-C1q < 15 mU/l. The normal values in non-pregnant women: TSH 0.37 – 5.00 mIU/l, fT4 9.8 – 23.1 pmol/l, TPOAb < 50 kU/l, anti-C1q < 15 mU/l.

Conclusions

Anti-C1q prevalence is higher in the first trimester of pregnancy as compared to non-pregnant women.

Pregnant women positively screened for AITD are more frequently positive for anti-C1q than women without thyroid disorders.

Serum levels of anti-C1q correlate with TSH in pregnant women screened positive for AITD and decrease after delivery.

References

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