

## Anti-C1q antibodies in patients with juvenile-onset systemic lupus erythematosus

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## Introduction

- Complement system plays an important role in Systemic Lupus Erythematosus (SLE) pathogenesis
- Homozygous C1q deficiency is the strongest genetic factor related to lupus
- Most patients with lupus do not have a primary complement deficiency, but a secondary hypocomplementemia
- Anti-C1q antibodies have been detected in 20-50% of adult SLE patients
- Elevated anti-C1q levels have been related to active lupus nephritis
- There are few reports in pediatric lupus with discordant results

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## Objectives

- To evaluate the frequency of anti-C1q in patients with juvenile-onset SLE (JSLE).
- To correlate anti-C1q levels with lupus nephritis and JSLE disease activity

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## Methods

- Forty-five patients with JSLE and 27 healthy controls were randomly investigated for the presence of anti-C1q antibodies
- Serum semi-quantitative detection of anti-C1q antibodies was performed with ELISA commercial kit (Inova Diagnostics - QUANTA Lite™ Anti-C1q)
- Anti-C1q levels higher than 20 units were considered positive
- C1q levels were determined by radial immunodiffusion in 38 JSLE patients

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## Results

- Age: 7 to 21 years-old
- Female:male ratio = 38:7
- Thirty-one patients with an arbitrary SLEDAI score 4 were considered with active disease
- Positive anti-C1q antibody titers were observed in 8/45 (17.7%) patients with JSLE and 3/27 (11.1%) healthy controls (p=0.51)

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## Results

- Mean anti-C1q level in JSLE patients was  $14.6 \pm 15.9U$  vs  $11 \pm 9.9U$  in the control group (p=0.09)
- Four (12.9%) patients with active disease had positive anti-C1q antibody
- Mean of anti-C1q levels in patients with active disease was  $16.9 \pm 22.2U$  vs  $12.8 \pm 9.3U$  in patients with inactive disease (p=0.8) and  $11.1 \pm 9.9$  on healthy controls (p=0.17)

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## Results

- Twenty-three JSLE patients had biopsy proven nephritis, 14 were in renal flare and only 2 (14.2%) had positive anti-C1q.
- Only 4 patients with positive anti-C1q had renal disease and only 2 were with renal flare.
- No correlations were found between anti-C1q antibodies and SLEDAI score or anti-dsDNA antibodies.
- C1q was absent in two JSLE patients, both of them did not present anti-C1q antibodies.

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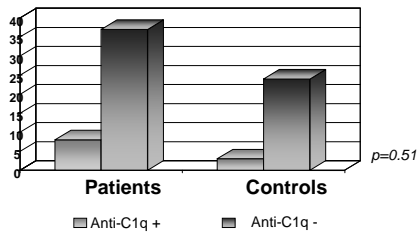
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## Results

Frequency (%) of anti-C1q antibodies in JSLE and healthy controls



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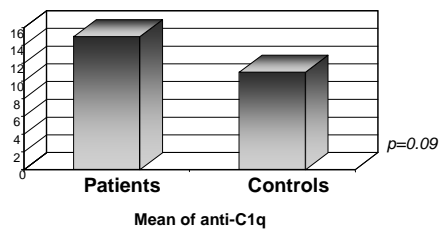
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## Results

Mean levels (Units) of anti-C1q in JSLE patients and healthy controls



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## Conclusion

- Our results in children with lupus differ considerably from those reported in adult SLE
- Correlations with disease activity in particular with renal flares were not significant
- Anti-C1q titers appear to be a weak biomarker in pediatric SLE

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