

Prevalence of Serum 14-3-3 η in Juvenile Idiopathic Arthritis

Background

- Among inflammatory joint diseases that have an onset before the age of 16 years, juvenile idiopathic arthritis (JIA) is the most common.¹
- Diagnosis of JIA is based on clinical factors and 2 biomarkers associated with poor disease outcome: rheumatoid factor (RF) and cyclic citrullinated peptide (CCP) antibodies.^{1,2}
- The biomarker 14-3-3 η is highly sensitive and specific for rheumatoid arthritis (RA) in adults³; however, utility of 14-3-3 η in JIA has not been studied.
- **Objective:** The investigators assessed serum levels of 14-3-3 η in JIA patients and evaluated the prevalence of the biomarker.

Methods

- Serum levels of 14-3-3 η protein, RF, and CCP antibodies were measured in 100 patients from the Pediatric Rheumatology Core at Children's Hospital of Los Angeles.
- Patients were categorized into 4 groups with
 - Polyarticular JIA and RF positive (PJIA RF+): 31
 - Polyarticular JIA and RF negative (PJIA RF-): 32
 - Psoriatic arthritis: 12
 - Oligoarticular JIA (OJIA): 25
- An enzyme-linked immunosorbent assay (ELISA) established at Quest Diagnostics was used to measure levels of 14-3-3 η . A level of ≥ 0.2 ng/mL was considered positive.
- Levels of RF were measured by immunoturbidimetry; levels of CCP antibodies were measured by immunoassay.
- Disease activity was assessed using a validated disease activity score.
- Correlations between 14-3-3 η positivity and RF/CCP antibody positivity and disease activity were evaluated using Fisher's exact test and Mantel-Haenszel statistics.

Results

- Of 28 patients who were positive for 14-3-3 η
 - 8 were negative for RF and CCP antibodies
 - 20 were positive for RF or CCP antibodies
 - 15 were positive for RF and CCP antibodies
- The PJIA RF+ group had the highest percentage of positive 14-3-3 η (58%) results.
- Positivity for 14-3-3 η correlated with positivity for RF and CCP antibody.
- Positivity for 14-3-3 η did not correlate with disease activity or age of onset.

Conclusions

- 14-3-3 η positivity correlates with RF and CCP antibody positivity, and is most prevalent in PJIA RF+ patients.
- Further study is needed to determine whether 14-3-3 η levels are helpful in the diagnosis, prognosis, or treatment of JIA patients.

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References

1. Giancane G, Consolaro A, Lanni S, et al. *Rheumatol Ther*. 2016;3:187–207.
2. Pang SY, Liu HY, Huang YJ, et al. *Genet Mol Res*. 2016;7:177.
3. Maksymowych WP, Naides SJ, Bykerk V, et al. *J Rheumatol*. 2014;41:2104.