AMERICAN JOURNAL OF EDUCATION AND LEARNING
ISSN: 2996-5128 (online) | ResearchBib (IF) = 10.91 IMPACT FACTOR
Volume-3| Issue-9| 2025 Published: |30-10-2025|

UDC: 616.72-000-02:616.6:618+616.348

CLINICAL COURSE OF REACTIVE ARTHRITIS DEPENDING ON ADAMTS7 SERUM LEVELS

https://doi.org/10.5281/zenodo.17373659

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Reactive arthritis (ReA) is an inflammatory joint disease that develops as a sequela of previous urogenital or intestinal infection. The clinical manifestations of the disease are heterogeneous, ranging from mild and self-limiting arthritis to persistent, chronic forms with structural joint damage. In recent years, considerable attention has been directed toward the identification of molecular biomarkers reflecting inflammation and tissue remodeling processes. One of these biomarkers is ADAMTS7, a metalloproteinase involved in extracellular matrix degradation, which plays a critical role in the pathogenesis of joint destruction. Given its involvement in inflammatory cascades, ADAMTS7 may serve as a potential marker for assessing disease severity and prognosis in patients with ReA.

Materials and Methods. A prospective observational study was conducted, including 60 patients with a confirmed diagnosis of ReA according to internationally accepted diagnostic criteria. The average age of participants was 36 ± 9 years; 70% were male. Exclusion criteria included the presence of other inflammatory rheumatic diseases, severe comorbidities, or previous immunosuppressive therapy. Serum levels of ADAMTS7 were measured using the enzyme-linked immunosorbent assay (ELISA) method. Based on the obtained values, patients were divided into two groups: Group 1 (n = 30): ADAMTS7 ≤ 10 ng/ml (low/moderate level), group 2 (n = 30): ADAMTS7 > 10 ng/ml (elevated level). The following parameters were assessed: number of affected joints, presence of enthesitis and dactylitis, laboratory markers of inflammation — C-reactive protein (CRP) and erythrocyte sedimentation rate (ESR), duration of symptoms (weeks). Clinical disease activity was evaluated at the time of enrollment. Laboratory analyses were performed in all patients under standardized conditions.

The data were processed using descriptive and comparative statistical methods. Quantitative variables were expressed as mean ± standard deviation (SD). Group comparisons were made using the Student's t-test. Categorical data were compared using the chi-square test (χ^2). Correlations between ADAMTS7 and

inflammatory markers were determined using Pearson's correlation coefficient. A p-value < 0.05 was considered statistically significant.

Results. Clinical characteristics: The average number of affected joints in patients with low/moderate ADAMTS7 levels (Group 1) was 3.1 ± 1.2, whereas in patients with elevated levels (Group 2) it was 6.8 ± 2.0 (p < 0.001).

Table №1.

Comparison of clinical and laboratory indicators in patients with different levels of ADAMTS7

Parameter	Group 1 (ADAMTS7 ≤10 ng/mL, n=30)	Group 2 (ADAMTS7 >10 ng/mL, n=30)	p
Number of patients	30	30	-
Mean age (years)	35 ± 8	37 ± 10	0.42
Males (%)	68 %	72 %	0.69
Number of affected joints (M±SD)	3.1 ± 1.2	6.8 ± 2.0	<0.001
Enthesitis (%)	23 %	57 %	0.03
Dactylitis (%)	16 %	43 %	0.04
CRP (mg/L, M±SD)	12.4 ± 4.3	22.1 ± 5.6	0.01
ESR (mm/h, M±SD)	18.6 ± 6.1	30.3 ± 7.5	0.01
Symptom duration (weeks, M±SD)	8.5 ± 3.4	14.2 ± 5.1	0.01

Note: Statistically significant differences (p < 0.05) are shown in bold. ADAMTS7 is a metalloproteinase associated with inflammatory activity and disease duration in reactive arthritis.

Enthesitis was recorded in 23% of Group 1 and 57% of Group 2 patients (p < 0.05). Dactylitis was observed in 16% and 43% of cases, respectively (p < 0.05). The mean CRP level was significantly higher in Group 2 compared to Group 1 (p <

0.01). A similar pattern was observed for ESR, with significantly elevated values in the group with higher ADAMTS7 levels ($p < 0.01$). The average duration of symptoms in patients with high ADAMTS7 levels was 14.2 ± 5.1 weeks, compared to 8.5 ± 3.4 weeks in those with lower levels ($p < 0.01$). A moderate positive correlation was found between serum ADAMTS7 and inflammatory activity indicators ($r = 0.47$ for CRP, $r = 0.42$ for ESR; $p < 0.05$), suggesting a direct relationship between this biomarker and the intensity of inflammation.

Discussion. The present study demonstrates that elevated ADAMTS7 serum levels are associated with a more severe and prolonged clinical course of ReA. Patients with increased ADAMTS7 exhibited a greater number of affected joints, higher frequency of enthesitis and dactylitis, elevated inflammatory markers, and longer disease duration. ADAMTS7 is known to promote extracellular matrix degradation and is involved in cartilage and connective tissue damage in inflammatory joint diseases. Its role in ReA pathogenesis is likely linked to amplification of inflammatory responses and promotion of structural damage. Our findings are consistent with previous studies in other rheumatic conditions, where increased ADAMTS7 levels were associated with disease activity and joint erosion progression. This supports the potential utility of ADAMTS7 as a prognostic biomarker in inflammatory arthritis.

Conclusion. Elevated serum ADAMTS7 levels in patients with ReA correlate with higher clinical and laboratory disease activity. High ADAMTS7 is associated with a greater number of affected joints, enthesitis, dactylitis, and longer duration of symptoms. ADAMTS7 may serve as a promising biomarker for identifying patients at increased risk of chronic ReA and can be used for risk stratification and individualized treatment planning.

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