Background: Immunosuppressive drugs, decreased vaccine coverage, aberrant immunity might be factors of low anti-vaccine antibodies in JIA patients.

Objectives: The study aimed to evaluate risk factors of non-protective levels of antibodies against measles, mumps, rubella, hepatitis B and diphtheria in JIA patients.

Methods: A prospective study included 170 children diagnosed with JIA aged 2 to 17 years, who received routine vaccinations against measles, rubella, mumps, diphtheria and hepatitis B. In all patients, the levels of post-vaccination antibodies (IgG) for measles, rubella, mumps, hepatitis B and diphtheria were measured with ELISA.

Results: Protective levels of antibodies were 50% against hepatitis B, 52% diphtheria, 58% measles, 58% mumps, 98% rubella. The best candidate for MMP had patients with enthesitis-related arthritis 85%, compared to oligoarthritis 70%, polyarthritis 69%, systemic arthritis 63%. Diphtheria coverage was 50%, 51%, 46%, 63%, respectively. Incomplete MMR vaccination had 39% patients treated with biologics, 22% with methotrexate and 14% with NSAID (p=0.025), and 61%, 46%, 63%, respectively. Incomplete vaccination was a risk factor of non-protective levels of antibodies against measles (HR=3.29 [95%CI: 2.13; 17.9], p=0.006) and diphtheria (HR=2.39 [95%CI: 1.18; 4.85], p=0.016). The lowest probability of having protective antibodies was observed in systemic arthritis compared to oligoarthritis (p=0.008) and polyarthritis (p=0.005). JIA patients, with non-protective levels of antibodies against measles, had more extended methotrexate treatment (2.8 [1.3; 6.4] vs 2.2 [0.9; 3.9] years, p<0.05) and increased applying of the biologics (76% vs 52%, p<0.05). Patients treated with biologics had the lowest probability of having protective levels of antibodies against measles, mumps, hepatitis B, and diphtheria than MTX and NSAID. Patients with non-protective antibodies had lower vaccine coverage against mumps (56% vs 67%, p<0.05) and diphtheria (38% vs 61%, p<0.01), longer duration of methotrexate 3.3 [1.4; 6.7] vs 1.8 [1.0; 2.9] years, p<0.01) and biologic treatment 3.1 [1.1; 5.4] vs 0.9 [0.0; 1.9] years, p<0.05) compared to patients with protective levels. The main risk factors to have non-protective levels of antibodies against specific vaccines are in Table 1 below.

Conclusion: Children with JIA may have lower anti-vaccine antibodies levels and required routine check, especially in children with incomplete vaccination, biologics, systemic arthritis and long-term methotrexate treatment. Funding statement: Footnotes: CI confidence interval, GCS glucocorticosteroids, HR hazard ratio, MTX methotrexate, na not applicable, scJIA systemic onset of juvenile idiopathic arthritis.

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### PERFORMANCE OF 2019 EULAR/ACR CLASSIFICATION CRITERIA FOR SYSTEMIC LUPUS ERYTHEMATOSUS IN A PEDIATRIC POPULATION – A MULTICENTER STUDY

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**Background:** The “European League Against Rheumatism” and “American College of Rheumatology” 2019 (EULAR/ACR-19) criteria for the diagnosis of Systemic Lupus Erythematosus (SLE) were recently published, with the stated goal of maintaining the level of sensitivity and raising the level of specificity for classification of SLE in adults.

**Objectives:** We aimed to examine the function of the new EULAR/ACR-19 criteria in a population of children and compare them to the SLICC-12 and ACR-97 criteria.

**Methods:** In this multicenter study the charts of JLE patients from three tertiary medical centers were reviewed and compared to patients with non-JLE diagnosis. Pediatric rheumatologists, blinded to the original diagnosis, reviewed and diagnosed all cases. Pediatric patients’ clinical and laboratory data were retrospectively extracted and then examined with regard to how they met the new and old criteria.

**Results:** Included were 225 patients (112 JLE, 113 non-SLE). When applied to juvenile SLE classification, the sensitivity of the new EULAR/ACR-19 criteria was 0.96 (0.9-0.99) and the specificity was 0.89 (0.82-0.94). These were comparable to the Systemic Lupus International Collaborating Clinics (SLICC) criteria. The sensitivity of the EULAR/ACR-19 criteria improves over time and was 0.83 twelve months following disease onset, reaching 0.96 after longer than 24 months.

**Conclusion:** Among a cohort of JLE patients, sensitivity of the new EULAR/ACR-19 criteria was found to be high and specificity may have improved slightly compared to the SLICC-12 criteria. We support the use of the new classification criteria for pediatric patients in future JLE studies, but it should be noted that its specificity is lower than for adults.

<table>
<thead>
<tr>
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<th>ACR-97</th>
<th>SLICC-12</th>
<th>EULAR/ACR-19</th>
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<tbody>
<tr>
<td>Sensitivity (95% CI)</td>
<td>0.79 (0.70-0.86)</td>
<td>0.96 (0.9-0.99)</td>
<td>0.96 (0.9-0.99)</td>
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<td>Specificity (95% CI)</td>
<td>0.94 (0.88-0.97)</td>
<td>0.85 (0.77-0.91)</td>
<td>0.89 (0.82-0.94)</td>
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<td>Accuracy (95% CI)</td>
<td>0.86 (0.81-0.9)</td>
<td>0.9 (0.86-0.94)</td>
<td>0.92 (0.88-0.96)</td>
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<tr>
<td>Positive Likelihood Ratio</td>
<td>6.35 (4.1-9.9)</td>
<td>9.0 (5.3-15.4)</td>
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<tr>
<td>Negative Likelihood Ratio</td>
<td>0.05 (0.02-0.12)</td>
<td>0.05 (0.02-0.12)</td>
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<tr>
<td>Diagnostic odds ratio (95% CI)</td>
<td>55.5 (22.8-135.0)</td>
<td>120.85 (43.0-340.0)</td>
<td>180.1 (61.3-529.4)</td>
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**REFERENCES:**