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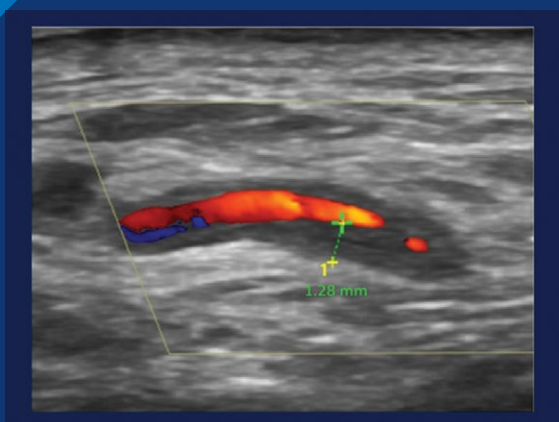


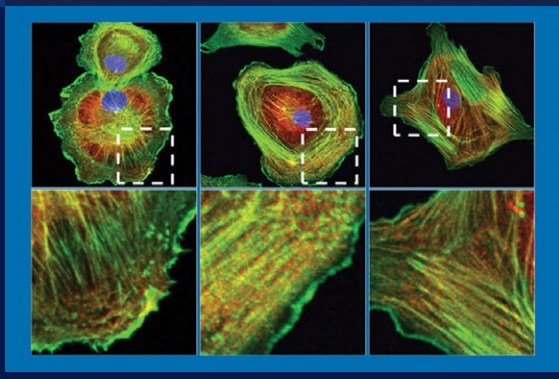

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**Abstracts**

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BMJ

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**Background:** Currently, there are no statistically significant data on the determination of risk factors and the role of the rs4646994 polymorphism in predicting the severity of COVID-19 in juvenile idiopathic arthritis (JIA).
**Objectives:** To study the features of the clinical course of COVID-19 and the role of the allelic polymorphism rs 4646994 of the ACE1 gene for the prevention and personalized therapy of patients with JIA.
**Methods:** We analyzed the anamnestic and clinical data of 44 patients with JIA who had COVID-19, the average age of children was (9.47±4.2) years. There were 2 groups of patients: I - 31 (70.5%) children with mild and asymptomatic course, II - 13 (29.5%) children with moderate COVID-19. The control group consisted of 20 children with mild and asymptomatic COVID-19 without chronic somatic pathology. The isolation and purification of genomic DNA preparations using proteinase K were performed, which constituted the Patient Biobank for genotyping at rs4646994 of the ACE1 gene.
**Results:** COVID-19 infection in 70.5% of patients with JIA has a mild, subclinical course. Insufficient medical control of the underlying autoimmune disease may be a predicted risk factor for more severe COVID-19 [OR 4.29±0.85 (DI (1.2-22.9)], (p=0.03). When studying the distribution of ACE I/D genotypes and alleles in JIA depending on the severity of coronavirus infection, no significant difference was found in the groups. However, there was a tendency to increase the frequency of the genotype (II insertion) among patients with JIA who had mild COVID-19 compared with the control group. In genotype II, there is, on the one hand, an imbalance of components of the renin-angiotensin system, which leads to the development of inflammatory processes characteristic of this autoimmune disease, but, on the other hand, genotype II can be considered as a protective factor, which causes a milder course of COVID-19 in this category of patients. In contrast to studies conducted in adult patients, no association has been established in children between the severity of COVID-19 disease and the carriage of the D allele of the ACE1 gene. The lack of data on such an association in the studied groups of children can be explained by the fact that there is evidence of a lower level of ACE2 expression in children than in adults, as well as a different tissue-specific localization of active ACE2 molecules and, accordingly, the systemically associated ACE1 protein level, depending on the genotype. The development, distribution and function of ACE2 protein in children may differ from that observed in adults. Studies have shown that the intracellular response induced by ACE2 in alveolar epithelial cells in children is lower than in adults. It was proved that the DD genotype was significantly more common in the group of children without rheumatologic pathology (p=0.02).
**Conclusion:** In 70.5% of patients with JIA, COVID-19 infection has a mild, subclinical course. The polymorphic variants of the ACE1 rs4646994 gene can`t be considered as informative markers for the prognosis of COVID-19 in children. The study was performed within the framework of the Horizon 2020 program under the contract No. RN/07-2023 of 25.12.2023 and is one of the first to assess the relationship between the severity of COVID-19 and the allelic polymorphism of the ACE1 gene in JIA in the Ukrainian population. The search for candidate genes that influence the course of COVID-19 in children with JIA is ongoing.
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## AB0277 PREVALENCE AND RISK FACTORS OF SARCOPENIA IN YOUNG ADULTS WITH JUVENILE IDIOPATHIC ARTHRITIS

**Keywords:** Prognostic factors, Sarcopenia, Vitamin D, Observational studies/registry

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**Background:** Sarcopenia has a negative impact on health not only in the elderly age but also among young adults with chronic diseases, increasing the risk of mortality and contributing significantly to reducing functional capacity.
**Objectives:** To identify the prevalence and factors associated with sarcopenia in young adults with juvenile idiopathic arthritis (JIA).
**Methods:** This is a cross-sectional study conducted with eighty-four young adults with JIA, aged ≥18-<44 years, of both sexes, who sought medical help in Kyiv, Ukraine. To identify sarcopenia, the European Working Group on Sarcopenia in Older People (EWGSOP2) criteria was used as a combination of low muscle mass measured by dual-energy x-ray absorptiometry (DXA) and low muscle strength measured by hand dynamometry. Covariates in logistic regression analysis were considered: body mass index (BMI), 25-hydroxyvitamin D (25(OH)D), disease activity by The Disease Activity Score-28 (DAS28-CRP) and Juvenile Arthritis Disease Activity 27 (JADAS27), Juvenile arthritis damage index (JADI) which measure articular (JADI-A) and extra-articular (JADI-E) indices, and functional capacity by Health Assessment Questionnaire (HAQ).
**Results:** The prevalence of sarcopenia in the young adults with JIA was 49% (41/84 patients), and this condition was associated with disease activity by DAS28-CRP (OR=2.08; CI 95% 1.15-3.76, p=0.01), JADAS27 (OR=1.15; CI 95% 1.04-1.27, p=0.007), JADI-A (OR=2.29; CI 95% 1.23-4.25, p=0.009), JADI-E (OR=3.15; CI 95% 1.36-7.29, p=0.008), HAQ (OR=4.14; CI 95% 1.38-12.5, p=0.01), 25(OH)D (OR=0.96; CI 95% 0.93-0.99, p=0.01), and BMI (OR = 0.73; CI 95% 0.60-0.89, p=0.002).
**Conclusion:** The prevalence of sarcopenia was high among young adults with JIA and associated with higher disease activity, articular and extra-articular damage and reduced functional capacity.
**REFERENCES: NIL.**

**Acknowledgements: NIL.**
**Disclosure of Interests: None declared.**
**DOI:** 10.1136/annrheumdis-2024-eular.1086

## AB0278 THE EFFICACY OF INTRAVENOUS PULSE STEROIDS IN ATTAINING REMISSION IN REFRACTORY JUVENILE IDIOPATHIC ARTHRITIS

**Keywords:** Glucocorticoids, Clinical Trial

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**Background:** Juvenile idiopathic arthritis (JIA) is the commonest chronic inflammatory arthritis in children. Its prevalence is 1/1000. The clinical presentation, prognosis, and response to treatment are very heterogeneous. The knees, ankles, and wrist are among the commonly involved joints in JIA [1]. Refractory or difficult-to-treat JIA means persistence of active JIA disease despite at least two different DMARDs. Confronting the perplexing challenge of refractory JIA, where the divergent nature of each subtype complicates treatment, a significant gap exists in clinical trials exploring the potential intravenous pulse steroids and the proper dose.
**Objectives:** This study endeavors to unravel the value of pulse steroids in achieving remission or low disease activity among patients with refractory active juvenile idiopathic arthritis, regardless of subtype.
**Methods:** a matched cohort of 215 JIA patients, representing various subtypes, who were active despite administration of two DMARDs, were randomly assigned to two groups. Group 1 (108 cases) received a two-days intravenous pulse steroid (125 mg methylprednisolone each day), while Group 2 (107 cases) ventured forth without the pulse. Both groups maintained their existing medication regimens over a three-month period, punctuated by monthly follow-ups. The efficacy of treatment was assessed using the Juvenile Arthritis Disease Activity Score (JADAS) and the American College of Rheumatology Pediatric 30, 50, and 70 response criteria (ACR Pedi 30, 50, 70).
**Results:** The resounding impact of pulse steroids reverberated through the realms of remission and low disease activity, as evidenced by JADAS scores at the three-month milestone. Furthermore, after three months, a remarkable surge in ACR Pedi 30 and 50 responses was observed, illuminating the transformative potential of this treatment modality (Table 1 and Figure 1). Notably, the systemic and oligoarticular subtypes emerged as the most receptive to this therapeutic intervention. Older age and more active cases at baseline responded better to the pulse steroid therapy. Sex and disease duration was not related to the response.
**Conclusion:** the administration of intravenous pulse steroids has demonstrated significant efficacy in achieving remission or low disease activity in refractory juvenile idiopathic arthritis, particularly within the systemic and oligoarticular subtypes.
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