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Article

FREQUENCY OF IDIOPATHIC ARTHRITIS IN CHILDREN

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Abstract: Idiopathic arthritis in early childhood represents a clinically and diagnostically challenging problem in modern pediatric rheumatology. Despite the relatively low prevalence of the disease in infants, early manifestation is associated with a severe course, a high risk of systemic complications, and impaired physical development. The article presents current data on the frequency of idiopathic arthritis in children during the first year of life, epidemiological features, genetic and immunopathogenetic mechanisms, as well as risk factors and diagnostic difficulties. International and regional studies demonstrating variability in prevalence rates are analyzed. The necessity of standardizing diagnostic criteria and establishing national registries to improve the accuracy of epidemiological assessment is emphasized.

Keyword: Juvenile Idiopathic Arthritis, Infants, Prevalence, Epidemiology, Early Manifestation

Introduction

Juvenile idiopathic arthritis (JIA) is the most common chronic rheumatic disease in children. This term encompasses a group of autoimmune and autoinflammatory diseases of unknown etiology characterized by persistent joint inflammation lasting more than six weeks in children under 16 years of age[1,3,4].Particular clinical importance is attributed to disease manifestation during infancy (under 12 months), as this group demonstrates a higher frequency of systemic forms, rapid contracture formation, impaired physical development, and an increased risk of disability.

According to international data, the overall prevalence of JIA ranges from 16 to 150 cases per 100,000 children, while annual incidence varies from 3 to 23 cases per 100,000 children[10,11,12].. Disease onset before one year of age is significantly less common, accounting for approximately 2–10% of all JIA cases, corresponding to 0.5–3 cases per 100,000 infants. Systemic and oligoarticular forms are most frequently diagnosed in infancy[2,5,6].Regional variability is associated with genetic background, diagnostic accessibility, availability of rheumatologic care, and the presence of national registries.The classification of JIA was developed by the International League of Associations for Rheumatology (ILAR). The main forms include systemic arthritis, oligoarthritis, polyarthritis (RF-positive and RF-negative), enthesitis-related arthritis, and psoriatic arthritis. In infants, systemic and oligoarticular variants predominate[7,8,9].

Current concepts indicate the multifactorial nature of the disease. Genetic factors include associations with HLA-DRB1 and polymorphisms of cytokine genes (IL-6, IL-1β, TNF-α). Immunological mechanisms involve activation of innate immunity, T-helper cell dysregulation, and overproduction of pro-inflammatory cytokines. In infants, particular importance is attributed to immune system immaturity and dysregulation of innate immune responses.

Aim and Objectives

The aim of the study was to investigate the clinical and diagnostic features of idiopathic arthritis onset in children during the first year of life based on a retrospective analysis of outpatient medical records.

The objectives included:Assessment of the frequency and characteristics of instrumentally confirmed

inflammatory joint changes (ultrasound and other imaging methods).Evaluation of laboratory markers of inflammatory activity (ESR, C-reactive protein, complete blood count).Determination of the time interval between symptom onset and diagnosis.Differential analysis with infectious, reactive, and orthopedic causes of joint syndrome.

Materials and Methods

A retrospective study was conducted analyzing outpatient medical records of 14 infants under one year of age who presented to the clinic with symptoms including joint swelling without significant pain, restricted joint movement, and delayed motor development. Instrumental examination confirmed inflammatory joint changes, and laboratory results were evaluated.

Results and Discussion

Fourteen children under one year of age were included in the study. The mean age at first presentation was 8.2 ± 2.1 months. Boys accounted for 8 cases (57.1%) and girls for 6 cases (42.9%).The leading clinical symptom was joint swelling (100%). Severe pain was absent in 85.7% of patients, which complicated early diagnosis. Restricted movement was observed in 78.6% of children and was most often detected by parents during changes in body position or attempts at active movement.Instrumental examination revealed inflammatory signs in the majority of cases: joint effusion in 71.4%, synovial membrane thickening in 64.3%, and increased vascularization on Doppler imaging in 50% of patients.Laboratory inflammatory markers demonstrated variability. Elevated ESR was observed in 64.3% of cases, increased C-reactive protein in 57.1%, and leukocytosis in 42.9%. Notably, 28.6% of children had normal laboratory inflammatory parameters despite ultrasound-confirmed synovitis.These findings indicate that inflammatory joint involvement in infants often presents with minimal clinical symptoms and may not always be accompanied by pronounced laboratory activity. Instrumental diagnostic methods combined with dynamic clinical observation have the highest diagnostic value in this age group.For Central Asian countries, the development of centralized pediatric rheumatology registries is essential. перспективные направления include genetic screening of high-risk groups, investigation of microbiota involvement, identification of early diagnostic biomarkers, and establishment of population-based registries.

Conclusion

Idiopathic arthritis in infants is a rare but clinically significant condition characterized by variability in prevalence across populations. Early diagnosis and standardized epidemiological accounting are essential for timely treatment and disability prevention. The development of national registries and implementation of modern immunogenetic diagnostic methods will allow more accurate assessment of true prevalence and improve prognosis.

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