15. RETINAL VASCULATURE PECULIARITIES IN PATIENTS WITH JUVENILE IDIOPATHIC ARTHRITIS: INSIGHTS FROM OPTICAL COHERENCE TOMOGRAPHY ANGIOGRAPHY

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Introduction. Juvenile Idiopathic Arthritis (JIA) is a chronic autoimmune disorder that primarily affects children and adolescents, causing inflammation in the synovium of joints. While the musculoskeletal manifestations of JIA have been extensively studied, there is a growing recognition of the extra-articular involvement of various organ systems, including the eyes. Ocular complications in JIA, such as uveitis, are well-documented, but the impact of the disease on the retinal vasculature remains an area of evolving research.

Aim of study. Understanding the specific retinal vascular peculiarities in patients with JIA could provide valuable insights into the pathophysiology of ocular involvement in this autoimmune disorder and may have implications for early detection and management of ocular complications. This study aimed to evaluate the quantitative Foveal Avascular Zone (FAZ) and retino-choroidal vessel density (VD) using Optical Coherence Tomography Angiography in patients diagnosed with juvenile idiopathic arthritis.

Methods and materials. A prospective study involving 50 patients diagnosed with JIA and JIA-associated uveitis (JIA-U) was conducted. OCT-A imaging was employed to assess retinal vasculature, focusing on key parameters such as vessel density, FAZ characteristics, and other relevant metrics. Clinical data, including disease duration and ocular complications, were also collected.

Results. The study included 50 JIA patients (93 eyes) with a mean age of 10.84 ± 4.21 years and a disease duration of 44.36 ± 36.81 months, of which 32/50 (64%) were females. Thirteen (26%) patients had JIA-U (Group 1, 19 eyes), while 37 (74%) had JIA without uveitis (Group 2, 74 eyes). The mean foveal superficial and deep capillary plexuses (SCP/DCP) vascular density (VD) were 14.6 ± 4.7 and 28.93 ± 6.29 in the 6x6 scan, respectively, in patients with JIA-U; and 16.5 ± 3.8 and 30.53 ± 2.98 in the 6x6 scan, respectively, in patients with JIA without uveitis. The mean FAZ area in the 6x6 scans was 0.33 ± 0.17 mm² in patients with JIA-U and 0.28 ± 0.08 mm² in patients from the second group. The mean central macular thickness (CMT) for patients from Group 1 and 2 in the 6x6 scans was 365.75 ± 193.17 µm and 116.47 ± 114.68 µm, respectively. It is noteworthy that 7 eyes were excluded from the study due to consistently poor-quality OCT-A images or excessive artifacts and severe ocular complications, including band keratopathy, uveal cataract, vitreous body destruction, and cystoid macular edema.

Conclusion. This study provides insights into retinal vasculature peculiarities in JIA patients, highlighting differences in SCP/DCP VD, FAZ area, and CMT between those with and without uveitis. These findings contribute to a better understanding of the ocular implications of JIA and may aid in early detection and management of ocular complications in affected children.