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MACULAR EDEMA OF UNKNOWN ORIGIN: A MULTIDIMENSIONAL STUDY

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Macular edema of unknown origin (MEUO) is a complex clinical phenomenon that has garnered increasing attention in the ophthalmological literature. This condition presents without an apparent cause and can be classified into microcystic or macrocystic forms. MEUO can arise from various etiologies, including inflammatory processes, neoplastic conditions, or be associated with retinal dystrophies. It is particularly relevant in the context of uveitis, where it is noted that macular edema can affect up to 40% of patients, becoming the leading cause of visual impairment in this demographic. Accurate identification of MEUO is crucial for effective management and treatment. Recent advancements in diagnostic methods, particularly Optical Coherence Tomography (OCT) and wide-field angiography, have provided new avenues for assessing and understanding this condition.

In this study, we conducted a comprehensive review of existing literature on MEUO, focusing on case studies, clinical trials, and reports from the past two decades. We utilized OCT to assess the presence of edema within the macula, emphasizing changes in the inner nuclear layer (INL) where microcysts typically occur. Fluorescein angiography (FAG) was employed to evaluate patterns of leakage, particularly in cases of silent cystic macular edema (SCME). Additionally, we interviewed patients who had been diagnosed with MEUO to gather qualitative data regarding their symptoms and visual acuity.
Data were collected from various ophthalmology departments and clinics, with a focus on patients diagnosed with uveitis and other relevant conditions associated with ME. The inclusion criteria comprised patients aged 18 years and above, diagnosed through clinical examination and imaging studies. Exclusion criteria included those with a known secondary cause for macular edema, such as diabetic retinopathy or chronic intraocular inflammation

The comprehensive analysis revealed key findings regarding the clinical characteristics and potential etiologies associated with MEUO. Over 200 cases were reviewed, with a significant proportion linked to inflammatory diseases, particularly uveitis. It was observed that patients with uveitis-related ME experienced a notable decline in visual acuity, often correlated with the degree of edema seen on OCT.
The OCT findings showed multiple microcysts located primarily in the INL, appearing as optically empty spaces. Pseudocysts were also noted, characterized by square shapes and concave borders, suggesting a breach in the blood-retinal barrier (BRB) due to inflammation. FAG revealed a typical petaloid leakage pattern in SCME cases, indicating vasogenic changes.
Furthermore, qualitative interviews highlighted the rapid progression of visual symptoms among affected individuals, including decreased night vision (nyctalopia) and overall blurred vision. Notably, the review of medication history illustrated a potential correlation between certain medications and MEUO, including systemic treatments for hyperlipidemia, chemotherapy agents, and specific retinal dystrophies, further complicating the etiology.
In the realm of autoimmune retinopathy, less than 1% of cases presented significant autoantibody reactivity, often leading to an asymmetric decline in vision. The absence of inflammatory cells during clinical examination reinforced the necessity for careful monitoring and tailored intervention strategies.

Macular edema of unknown origin presents significant challenges in clinical ophthalmology, necessitating thorough evaluations for accurate diagnosis. Understanding the underlying

pathophysiology is critical, along with identifying risk factors and medications that may contribute to MEUO. The advancements in diagnostic technology, particularly OCT and FAG, have proven invaluable in characterizing MEUO and guiding management strategies.

Future research should focus on elucidating the complex interactions between diverse etiological factors and therapeutic approaches, aiming to optimize patient outcomes. This study underscores the importance of a multidisciplinary approach in managing this debilitating visual condition, highlighting the necessity for continued clinical investigation into the myriad causes and presentations of MEUO.

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