Editorial: Expanded insights into diabetic neovascular glaucoma by widefield swept-source optical coherence tomography angiography

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The field of ophthalmology has remarkably improved by the introduction of sophisticated imaging techniques, among which widefield swept-source optical coherence tomography angiography (WF SS-OCTA) stands out, indicating an important shift in the diagnostic procedures and management of diabetic retinopathy [1]. Specifically intriguing is the paper of Lu et al. published in the current issue of Graefe's, looking into the correlation between WF SS-OCTA metrics and neovascular glaucoma (NVG) in individuals with proliferative diabetic retinopathy (PDR).

NVG, an aggressive variant of secondary glaucoma, usually arises as a threatening outcome of several ischemic retinal pathologies, with PDR being paramount. This condition is marked by the emergence of novel, yet fragile blood vessels that interfere with the eye's standard aqueous outflow, hence rise in high intraocular pressure that subsequently rapidly progress into pain, ocular inflammation, and diminished sight. A delayed diagnosis tragically tends towards irreversible visual impairment, emphasizing the need for precocious detection indicators [2].

Previous research has praised WF SS-OCTA for its rapid, widespread retinal imagery, a clear stride ahead of traditional OCTA, attributed to its broader visual field [3]. Within their study, Lu et al. have attempted to ascertain the contributory role of WF SS-OCTA in diabetic NVG. Their consideration diverges from established opinion, associating retinal ischemia—rather than neovascularization (NV) itself—with NVG onset. They examined parameters such as nonperfusion area (NPA) and diverse NV characteristics, encompassing quantity, expanse, and vascular density, demonstrating the fundamental pathological transitions.

Their opinion that retinal ischemia is consonant with the emergence of NVG in subjects with PDR is shifting our focus towards the preliminary ischemic events that precede abnormal vascular proliferation rather than the development of neovascular tissue alone. This revelation imparts significant consequences for clinical methodologies.

Specifically, this insight necessitates a re-evaluation of preventive focal points. The humble identification of retinal ischemia via WF SS-OCTA could help medical professionals to initiate early therapeutic actions, potentially preventing NVG and possibly advancing the prognosis for those at risk. Additionally, other than the broadly executed invasive and time-consuming fluorescein angiography, practitioners may more frequently employ this non-invasive imaging technique to thoroughly control for ischemia, thereby identifying susceptible patients and availing an opportunity for prompt intervention prior to the devastating manifestations of NVG.

Nevertheless, the transition from academic discovery to clinical

normativity is complex. While the results presented are encouraging, they come from a transversal study, which, albeit potent, merely offers a temporal probability in the disease's evolution. Thus, longitudinal investigations concerning this clinical challenge, comparing yet to be established normative databases to diabetic features in WF SS-OCTA, are clearly necessary [4]. Ascertainment of the prognostic efficacy of these ischemic markers over extended periods, through scientifically rigorous studies, is crucial for their integration into everyday medical practice.

In a broader context, this work shows substantial societal implications. The early recognition and prophylaxis of NVG, an extreme offshoot, could markedly diminish healthcare expenditures, lighten communal loads, and critically, safeguard the ocular health and life quality of diabetic individuals.

This study confirms the extensive importance of assimilating technological progress within medical care. WF SS-OCTA may serve as a model of how innovative instruments can reveal disease facets often unnoticed, steering a course towards more accurate, personalized medical care. It substantiates the need for ongoing investments in scientific inquiry and advanced medicinal technology.

In conclusion, this current investigation underlines the capabilities of WF SS-OCTA to illuminate an important aspect of diabetic neovascular glaucoma, with retinal ischemia emerging as a potential herald of the disease, independent of neovascularization. The findings await validation through comprehensive longitudinal analyses, with the promise of refined disease understanding and enhanced patient outcomes,

supporting the fight against serious visual impairment in the diabetic population.

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