Diabetic retinopathy severity and peripheral lesions are associated with nonperfusion on ultrawide field angiography

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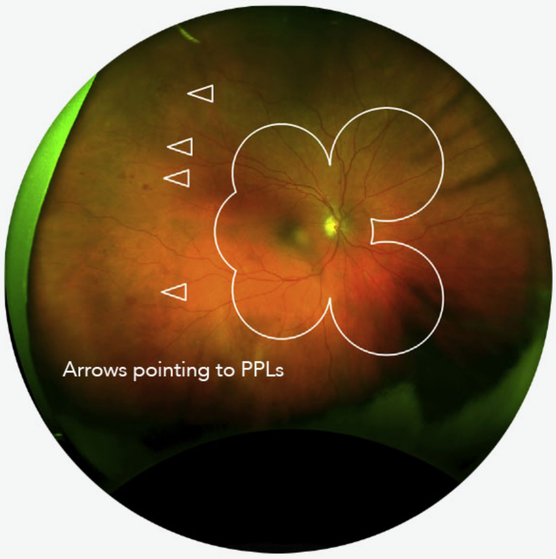
The objective of this single-site, cross-sectional, retrospective study was to assess whether the presence of peripheral nonperfusion on ultrawide field (UWF) fluorescein angiography is associated with diabetic retinopathy (DR) severity and the presence of predominantly peripheral lesions (PPL).

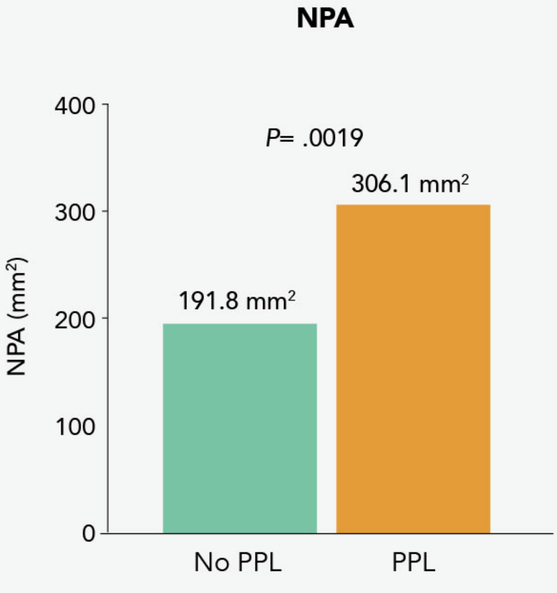
Both 200° ultrawide field (UWF) images and UWF fluorescein angiography (FA) images were acquired at the same visit.

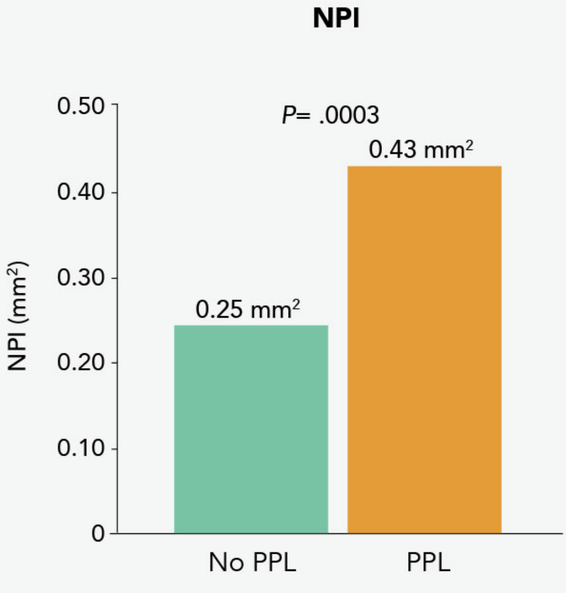


Early Treatment Diabetic Retinopathy Study (ETDRS) templates were overlaid digitally based on disc and macula location onto stereographically projected UWF images. Images were evaluated for the presence of PPLs, defined as more than 50% of the graded lesion located outside the ETDRS field in each of the 5 extended fields.

White arrows highlight the hemorrhages, microaneurysms, or both, located predominantly outside the ETDRS fields (white outline).

Presence of PPLs was associated with increased nonperfusion area (NPA) and nonperfusion index (NPI)





Conclusions

Following a standardized protocol, the evaluation of UWF FA for NPA and NPI is reproducible. Both parameters are correlated highly with the presence of PPLs and DR severity. Given that the presence and extent of PPLs have been associated with increased risks of DR progression, the clinical identification of PPLs may reflect closely the extent of nonperfusion and ischemia, thus accounting for the increased risk of progression.