Abstract 110

RETINAL NON-PERFUSION AREA MEASURED WITH WIDEFIELD OCT-ANGIOGRAPHY IN DIABETIC RETINOPATHY WITH OR WITHOUT NEOVASCULARIZATION

Oral

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Purpose:

To compare retinal non-perfusion areas using widefield optical coherence tomography-Angiography (OCT-A) in eyes with diabetic retinopathy (DR) with or without neovascularization.

Methods:

We conducted an observational case series in a tertiary ophthalmology centre. Treatment-naïve eyes with severe non-proliferative DR (NPDR) and proliferative DR (PDR) were consecutively included. An OCT-A photomontage(five 12 mm x 12 mm images)was obtained i all patients. Non-perfusion areas (NPA) were measured using a semi-automatic approach based on a first step of automatic segmentation, relying on spatial variance map analysis, followed by a second step of manual correction. We then compared NPA in eyes with severe NPDR vs PDR. The location of NPA and its correlation to the presence of local neovascularization were also assessed in the different sectors.

Results:

A total of 51 eyes of 30 patients (27 with severe NPDR and 24 eyes with PDR) were included. The mean NPA was significantly higher in PDR compared with severe NPDR (18.94% vs 7.51%, $p < 0.01$). Using NPA in the whole image as a tool to detect PDR, the ROC-curve AUC was 0.77 (optimal cutoff of 12.69%, sensitivity = 0.625, specificity = 0.889). The AUC increased when using NPA in the most peripheral circle (0.792). The presence of local neovascularization in a sector was associated with a higher NPA in the same sector (29.2% vs 6%, $p < 10-15$).

Conclusions:

Using a semi-automatic approach, we showed that the NPA percentage on WF OCT-A photomontage was significantly higher in eyes with PDR compared to eyes with severe NPDR. This approach shows intermediate diagnostic performances to predict PDR status, possibly because of ischemia located outside the OCT-A image field.