Qualitative and Quantitative Follow-up of Patients with Retinal Vein Occlusion using Optical Coherence Tomography Angiography

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INTRODUCTION

To evaluate qualitatively and quantitatively the results using Optical Coherence Tomography Angiography (OCTA) in the follow-up of patients treated with intravitreal injections for macular edema secondary to retinal vein occlusion (RVO).

METHODS

- Retrospective study of RVO patients treated with intravitreal injections for macular edema.
- Before and after injection, following data were recorded: best-corrected visual acuity (BCVA), SD-OCT, fluorescein angiography and OCT A (Optovue, Inc., Fremont, California, USA).
- Automatic measurement of vascular density of the superficial (SCP) and deep capillary plexus (DCP) was also done before and after treatment and compared to healthy subjects, matched for age and gender.

RESULTS

- 35 eyes of 34 patients (mean age, 68 years, male 63%) 16 central RVO, 15 branch RVO and 4 hemicentral RVO.
- After treatment, central macular thickness decreased from 623µ to 326µ.
- BCVA increased from 20/100 to 20/63 (p < 0.01 for both).
- On OCTA:
  - Decrease of perifoveal capillary disruption was observed after treatment (p<0.02).
  - Decrease of vascular dilation in the SCP and the DCP (p<0.001 and 0.016 respectively).
  - Decrease of the number of cysts in the SCP and DCP (p<0.001 for both).
- At the SCP, the mean whole en face vascular density slightly decreased during follow-up from 45.7 to 44.5%, (non-significant difference).
- These densities were largely inferior to those observed in control subjects (45.6% vs. 52.2% for the SCP and 47.8% vs. 57.6% for the DCP, p<0.001 for both).

CONCLUSION

Along with the disappearance of macular edema and of macular cysts, OCTA showed a slight decrease in mean macular vascular density with time and despite treatment.

This technique enables a quantitative and qualitative evaluation of the follow-up of RVO patients, particularly useful to analyze both macular edema and vascular perfusion.

REFERENCES


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