Correlation of Response to Bevacizumab Treatment Between the First and Second Treated Eyes in Diabetic Macular Edema

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Purpose:
To evaluate if the outcome of bevacizumab treatment in the first treated eye (FE) can guide selection of compound for the second treated eye (SE) in patients with bilateral diabetic macular edema (DME).

Methods:
Demographics, clinical, and OCT data were retrospectively collected from consecutive patients that underwent bevacizumab therapy for bilateral DME. Change in central subfield thickness (CST) and visual acuity (VA) were evaluated and compared between fellow eyes.

Results:
Sixty-six eyes of 33 patients were included in the study with a mean±SD follow-up of 13±5 months. The mean±SD LogMAR VA at baseline was 0.45±0.42 in the FE, and 0.43±0.37 in the SE (P=0.79). VA remained stable following 9 injections (0.44±0.43, 0.46±0.4, respectively, p=0.8). The mean±SD CST at baseline was 464±17 microns in the FE, and 461±17 microns in the SE (p=0.91 between FE and SE). Final CST reduced to 392±155 in the FE (p=0.01 compared with baseline), and 416±144 in the SE (p=0.03 compared with baseline). Using ≥5% or ≥10% reduction of CST as diagnostic criteria to predict similar magnitude of thickness reduction in the fellow eye yielded a positive and negative predictive values ranging from 46% to 81%, and sensitivity and specificity ranging from 54% to 84%. Regression models couldn’t demonstrate correlation of CST reduction in 3, 5 or 9 months between fellow eyes of the same individual patient.

Conclusions:
Overall, bevacizumab therapy reduced macular thickness in fellow eyes in bilateral DME. However, the treatment outcome in one eye do not have sufficient diagnostic accuracy to predict outcome in the fellow eye. Particularly, failure of thickness reduction in the first treated eye following bevacizumab therapy does not exclude favorable response for bevacizumab therapy in the fellow eye.