

Supplementary Online Content

Karst SG, Deak GG, Gerendas BS, et al. Association of changes in macular perfusion with ranibizumab treatment for diabetic macular edema: a subanalysis of the RESTORE (extension) study. *JAMA Ophthalmol*. Published online March 1, 2018. doi: 10.1001/jamaophthalmol.2017.6135

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This supplementary material has been provided by the authors to give readers additional information about their work.

eTable 1 Baseline characteristics of the participants of the RESTORE Extension Study.

Characteristic	Ranibizumab + sham laser n=83	Ranibizumab + laser n=83	Sham injection + laser n=74
Age, mean (\pm SD) y	61.7 (\pm 9.17)	63.8 (\pm 8.32)	62.4 (\pm 8.89)
Sex, female n (%)	31 (37.7)	33 (39.8)	34 (45.9)
BMI mean (\pm SD), kg/m ²	29.8 (\pm 4.72)	29 (\pm 4.12)	30.4 (\pm 5.69)
HbA1c, mean (\pm SD), %	7.26 (\pm 1.09)	7.6 (\pm 1.13)	7.16 (\pm 1.06)
Type 1 DM, n (%)	9 (10.1)	12 (14.5)	10 (13.5)
Type 2 DM, n (%)	74 (89.2)	70 (84.3)	63 (85.1)
Duration DM, mean \pm (SD), y	14.7 (\pm 9.77)	14.59 (\pm 10.1)	13.3 (\pm 8.48)
Hypertension, n (%)	48 (57.8)	46 (55.4)	47 (63.5)
Capillary loss \geq moderate, n (%)	27 (32.5)	24 (28.9)	14 (18.9)
FAZ outline \geq 1/2 destroyed, n (%)	13 (15.7)	11 (13.3)	7 (9.5)
FAZ area, mean (\pm SD) mm ²	0.26 (0.23)	0.23 (0.22)	0.20 (0.13)

Treatment arms correspond to initial randomization since all patients were treated with ranibizumab as needed after the first 12 months.

eTable 2 Change in FAZ outline over time

Visit	Parameter	Ranibizumab	Ranibizumab + laser	Laser
Baseline	Normal	8 (10.0%)	3 (3.8%)	8 (10.8%)
	Borderline	18 (22.5%)	25 (31.3%)	14 (18.9%)
	<1/2 definitely altered	25 (31.3%)	22 (27.5%)	25 (33.8%)
	>1/2 definitely destroyed	8 (10.0%)	8 (10.0%)	6 (8.1%)
	Completely destroyed	5 (6.3%)	3 (3.8%)	1 (1.4%)
	Cannot grade	16 (20.0%)	19 (23.8%)	20 (27.0%)
Month 12	Normal	9 (12.0%)	2 (2.5%)	4 (5.6%)
	Borderline	19 (25.3%)	17 (21.0%)	15 (21.1%)
	<1/2 definitely altered	15 (20.0%)	24 (29.6%)	15 (21.1%)
	>1/2 definitely destroyed	14 (18.7%)	10 (12.3%)	9 (12.7%)
	Completely destroyed	3 (4.0%)	3 (3.7%)	1 (1.4%)
	Cannot grade	15 (20.0%)	25 (30.9%)	27 (38.0%)
Month 36	Normal	4 (5.6%)	4 (5.6%)	5 (7.9%)
	Borderline	14 (19.4%)	10 (14.1%)	13 (20.6%)
	<1/2 definitely altered	22 (30.6%)	22 (31.0%)	13 (20.6%)
	>1/2 definitely destroyed	8 (11.1%)	7 (9.9%)	5 (7.9%)
	Completely destroyed	4 (5.6%)	1 (1.4%)	-
	Cannot grade	20 (27.8%)	27 (38.0%)	27 (42.9%)

eTable 3 Patients with capillary loss graded moderate or greater pooled for the central and 4 inner ETDRS subfields

Baseline Arm	Ranibizumab + sham laser	Ranibizumab + laser	Sham injection + laser
Timepoints	n=83	n=83	n=74
Baseline – n (%)	27/80 (33.8)	24/80 (30.0)	14/74 (18.9)
Month 6 – n (%)	21/81 (25.9)	19/75 (25.3)	17/70 (24.3)
Month 12 – n (%)	23/75 (30.7)	24/81 (29.6)	13/71 (18.3)
P value (versus laser)	0.224	0.173	
P value (versus combination)	0.867		
P value (vs BL)	0.670	1.000	0.796
Month 18 – n (%)	20 /64 (31.25)	18/70 (25.7)	8/59 (13.6)
Month 24 – n (%)	23/68 (33.8)	17/65 (26.2)	11/56 (19.6)
Month 30 – n (%)	21/70 (30.0)	14/65 (21.5)	9/61 (14.8)
Month 36 – n (%)	26/72 (36.1)	20/71 (28.2)	13/63 (20.6)
P value (versus laser)	0.148	0.468	
P value (versus combination)	0.449		
P value m36 vs BL	0.371	0.637	0.366

The maximum grade in any of the 5 ETDRS subfields was used to represent the eye. p=value versus baseline come from McNemars test, p-values between group from a repeated measures logistic regression analysis with treatment, baseline capillary loss, time and the interaction of time with treatment and time with baseline capillary loss as factors.

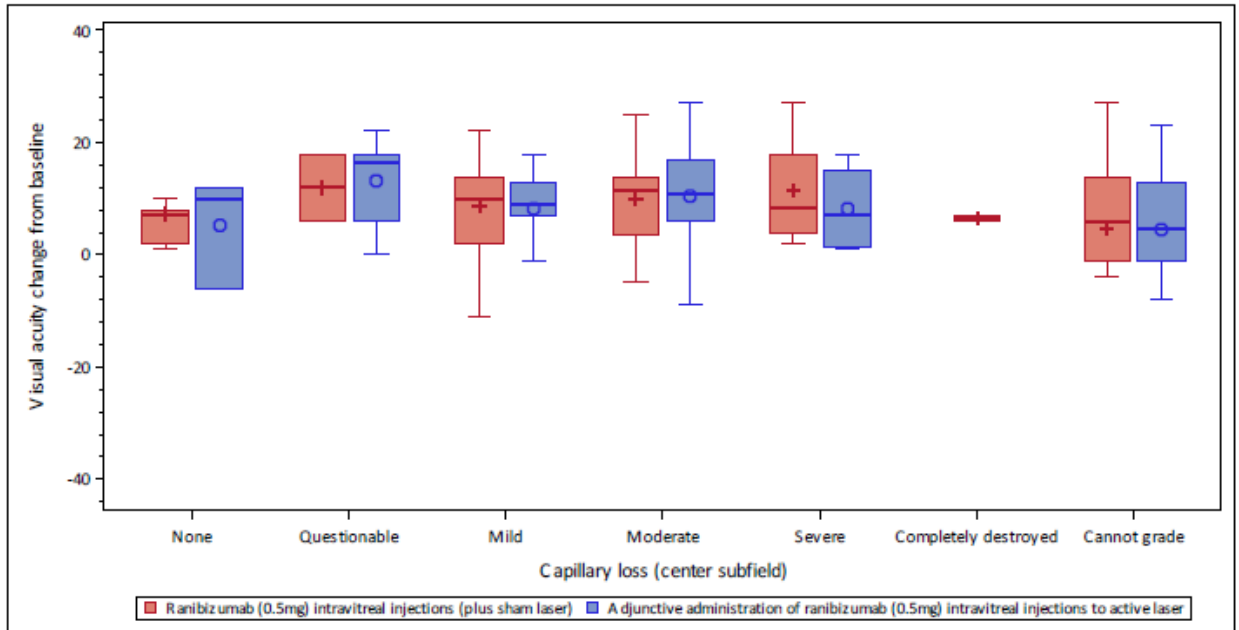
eFigure 1 Example of early phase fluorescence angiography image with the inner capillaries of the foveal avascular zone outlined manually and overlay of ETDRS grid centered on the fovea



eFigure 2 Change of visual acuity from baseline to month 36 by capillary loss in the central subfield at month 36

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Summary statistics of Change from baseline in Visual acuity score (Observed) by Capillary loss (center subfield) at Month 36
Safety population



All Safety patients in the ranibizumab PRN arms from RESTORE (RFB0002D2301E).
 - Treatment A : Ranibizumab (0.5mg) intravitreal injections (plus sham laser).
 - Treatment B : Adjunctive administration of ranibizumab (0.5mg) intravitreal injections to active laser.