Supplementary Table 1. The Cohen's Kappa values for the WF SS-OCTA characteristics

	Kappa
The presence of IRMA	0.77
The presence of NPA	0.73
The presence of NVE	0.69
The presence of NVD	0.73
Stable IRMA	0.70
Progression of IRMA	0.76
Regression IRMA	0.68
Obliteration IRMA	0.58
New NVE developed from venules	0.65
New NVE developed from IRMA	0.61
New NVD	0.61

IRMA= intraretinal microvascular abnormalities; NPA= nonperfusion areas; NV=neovascularizations; NVE=neovascularization elsewheres; NVD=neovascularizations of the optic disc; F/U= follow-ups

Supplementary Table 2. OCTA metrics at Baseline and F/U

		NPDR			PDR		
		BL Median (IQR)	F/U Median (IQR)	P value	BL Median (IQR)	F/U Median (IQR)	P value
Ischemia Index		0.03 (0-0.07)	0.04 (0-0.09)	<0.001	0.14 (0.11-0.14)	0.17 (0.11-0.22)	<0.001
VD	SCP	0.35 (0.3-0.38)	0.35 (0.30-0.38)	0.323	0.33 (0.29-0.36)	0.32 (0.29-0.35)	0.351
	DCP	0.16 (0.10-0.23)	0.14 (0.09-0.19)	0.002	0.15 (0.10-0.19)	0.12 (0.08-0.16)	0.001
	Retina	0.38 (0.33-0.40)	0.37 (0.33-0.41)	0.317	0.36 (0.32-0.39)	0.35 (0.32-0.38)	0.150
VSD	SCP	12.30 (10.60-13.25)	11.90 (10.29-13.09)	0.397	11.34 (10.06-12.59)	11.02 (10.05-12.07)	0.250
	DCP	5.93 (3.86-8.37)	4.91 (3.11-6.81)	0.002	5.32 (3.67-6.81)	4.21 (3.05-5.84)	0.001
	Retina	13.31 (11.85-14.31)	12.88 (11.44-14.20)	0.490	12.36 (11.30-13.37)	12.10 (11.19-13.17)	0.131
FAZ	Raw Length	2.82 (2.16-3.37)	2.46 (1.95-3.11)	0.204	2.55 (2.04-3.25)	2.44 (1.97-3.28)	0.251
	Circularity	0.64 (0.51-0.73)	0.67 (0.56-0.73)	0.031	0.62 (0.55-0.69)	0.64 (0.54-0.72)	0.665
	Raw Size	0.40 (0.25-0.51)	0.33 (0.22-0.47)	0.236	0.32 (0.22-0.47)	0.31 (0.20-0.50)	0.312

NPDR=non-proliferative diabetic retinopathy, PDR=proliferative diabetic retinopathy; VD=vessel density; VSD=vessel skeletonized density; FAZ=foveal avascular zone; SCP=superficial capillary plexus; DCP=deep capillary plexus; BL=baseline; F/U= follow-ups; Ischemia index=non-perfusion areas/total area.

Supplementary Table 3

Baseline features for regression of IRMA

	HR	P	95% CI
Age	0.95	0.095	0.9-1.01
Diabetes duration	0.97	0.164	0.92-1.01
HbA1c	1.19	0.168	0.93-1.53
BMI	0.93	0.215	0.83-1.04
Hypertension	0.30	**0.004**	0.13-0.68
Prior PRP	3.18	0.232	0.48-21.24
Presence of NVE	2.25	0.115	0.82-6.14

Time-varying features for regression of IRMA

	HR	P	95% CI
Age	0.95	0.044	0.91-1
Diabetes duration	0.94	0.068	0.87-1
HbA1c	1.07	0.752	0.71-1.61
Injection during F/U	3.33	**0.039**	1.07-10.21
PRP during F/U	3.98	0.055	0.98-16.33
DME	0.59	0.410	0.18-1.34
ΔBMI	1.69	0.259	0.68-4.23
ΔMABP	1.06	0.880	0.48-2.33
ΔFAZ	0.01	**0.007**	0-0.26

Baseline features for obliteration of IRMA

	HR	P	95% CI
Age	0.99	0.513	0.95-1.03
Diabetes duration	1.04	0.132	0.99-1.1
HbA1c	1.05	0.708	0.8-1.39

Diagnose	1.37	0.360	0.7-2.69
Prior focal laser	0.10	0.050	0.01-1
Prior PRP	13.57	**<0.001**	15.33-1622.31
DME	4.41	0.065	0.97-21.22
NV	1.03	0.643	0.45-3.6
NVD	1.19	0.394	0.3-4.81
ISI	73.13	0.209	4867924-11010.43
VDDCP	0.74	**0.007**	0.59-0.92
Age	0.99	0.513	0.95-1.03

Time-varying features for obliteration of IRMA

	HR	P value	95% CI
Age	1.01	0.754	0.97-1.05
Diabetes duration	1.06	0.037	1-1.11
HbA1c	1.11	0.434	0.85-1.46
Injection during F/U	3.96	**0.025**	1.19-13.18
ΔBMI	4.19	**<0.001**	2.49-7.04

Baseline features for progression of IRMA

	HR	P	95% CI
Age	1.01	0.379	0.98-1.05
Diabetes duration	0.98	0.594	0.96-1.02
HbA1c	1.19	0.094	0.97-1.45
Hypertension	0.48	0.086	0.21-1.11
Prior focal laser	0.10	0.050	0.01-1
NVE	1.51	0.321	0.67-3.35
ISI	23.17	**0.049**	1.01-529.95

Time-varying features for progression of IRMA

	HR	P	95% CI
Age	1.02	0.272	0.99-1.05
Diabetes duration	0.98	0.194	0.95-1.01
HbA1c	1.18	0.100	0.97-1.44
PRP during F/U	5.30	**<0.001**	2.08-13.5

Baseline features for NVE from veins

	HR	P	95% CI

Age	0.97	0.207	0.92-1.02
Diabetes duration	1.01	0.803	0.95-1.08
HbA1c	1.40	**0.019**	1.06-1.84
ISI	1.02	0.320	0.98-1.07
BMI	0.97	0.318	0.92-1.03

Time-varying features for NVE from veins

	HR	P	95% CI
Age	0.96	0.166	0.91-1.02
Diabetes duration	0.99	0.695	0.91-1.06
HbA1c	1.29	0.084	0.97-1.73
IRMA obliteration	2.78	0.284	0.43-18.08
IRMA progression	1.99	0.425	0.37-10.85
ISI	6.02	**<0.001**	2.73-13.29
MABP	1.18	0.590	0.65-2.14

Baseline features for NVE from IRMA

	HR	P	95% CI
Age	0.96	**0.049**	0.92-1
Diabetes duration	1.04	0.263	0.97-1.11
HbA1c	0.82	0.471	0.48-1.4
ISI	1.02	0.403	0.97-1.07
BMI	0.99	0.594	0.94-1.04

Time-varying features for NVE from IRMA

	HR	P	95% CI
Age	0.95	0.055	0.91-1
Diabetes duration	1.02	0.518	0.96-1.09
HbA1c	0.98	0.947	0.55-1.74
IRMA obliteration	2.69	0.341	0.35-20.62
IRMA progression	2.28	0.470	0.24-21.44
ΔISI	0.18	0.168	0.01-2.07
ΔMABP	0.43	0.275	0.1-1.95