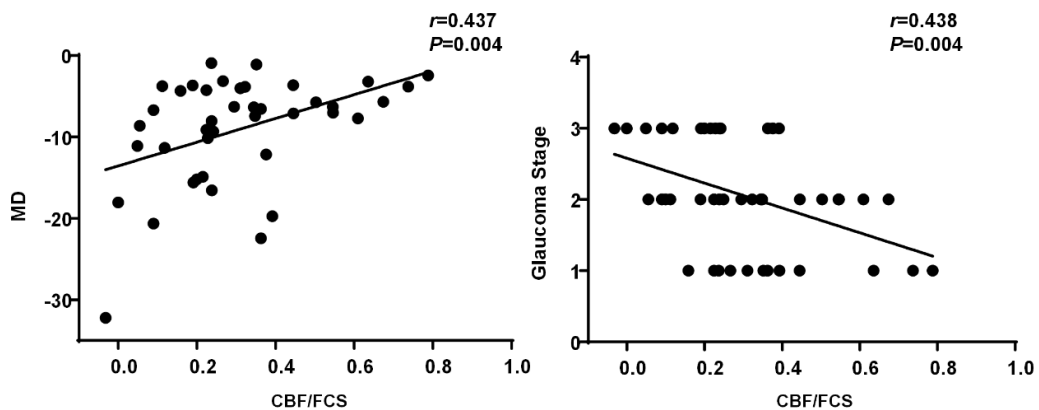
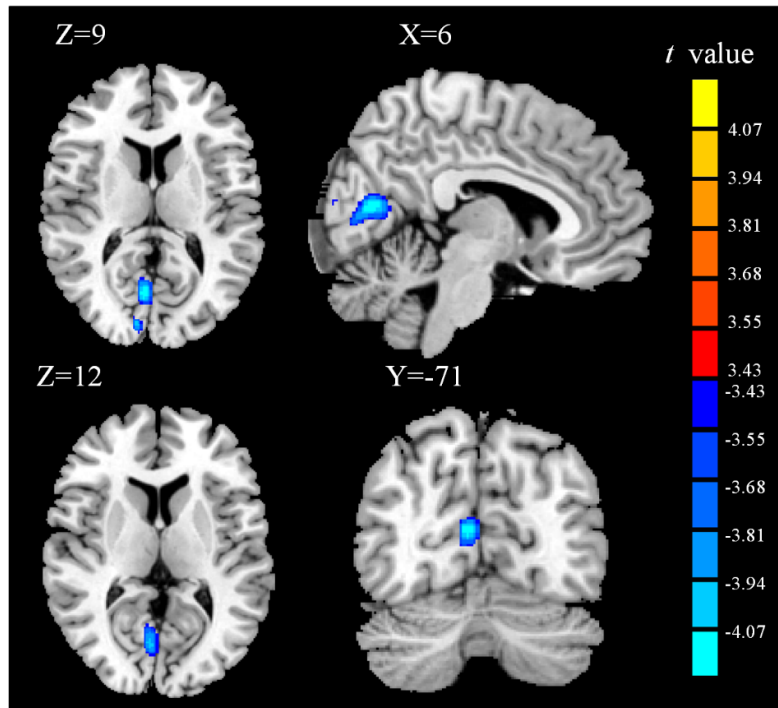


Supplemental Figure S1. Altered CBF/FCS ratios in early POAG patients compared with NC (GRF-corrected voxel P value < 0.001 and cluster P value < 0.05). The warm and cold colors denote significantly increased and decreased CBF/FCS ratio, respectively, in POAG patients. Abbreviations: CBF, cerebral blood flow; FCS, functional connectivity strength; POAG, primary open-angle glaucoma; NCs, normal controls; GRF, Gaussian random field.

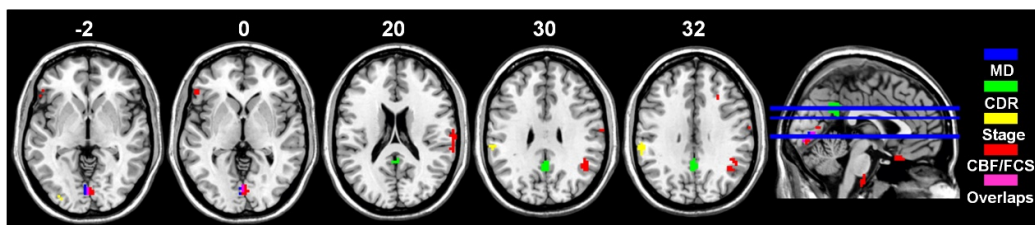


Supplemental Figure S2. Significant correlations between the CBF/FCS ratio of the lingual gyrus and both the MD of visual field defects and glaucoma stage in POAG patients. The scatterplots show that the

CBF/FCS ratio of the lingual gyrus was positively correlated with the MD of visual field defects, and negatively correlated with glaucoma stage. Abbreviations: CBF, cerebral blood flow; FCS, functional connectivity strength; POAG, primary open-angle glaucoma; MD, mean deviation.



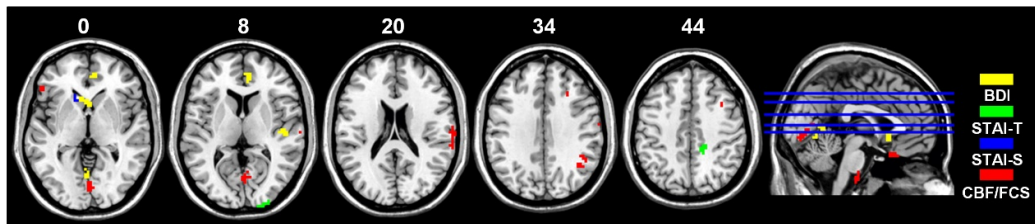
Supplemental Figure S3. Group differences in GMV between POAG patients and NCs. Cool colors show visual cortex atrophy extending to the limbic lobe in patients with POAG compared with NCs ($P < 0.001$, uncorrected, cluster size: 552 voxels). Abbreviations: POAG, primary open-angle glaucoma; NCs, normal controls; GMV, gray matter volume.



Supplemental Figure S4. The brain regions with abnormal CBF/FCS ratio and regions with the significant correlations between CBF/FCS ratio and MD overlap in the lingual gyrus (pink color), indicating the reduced CBF/FCS ratio in lingual gyrus positively correlated with MD in POAG patients.

The brain regions with abnormal CBF/FCS ratio are showed by red color. The regions with significant correlations between CBF/FCS ratio and three ophthalmologic measures (MD, CDR and glaucoma stage) in patients with POAG are presented by blue, green and yellow color, respectively.

Abbreviations: CBF, cerebral blood flow; FCS, functional connectivity strength; POAG, primary open-angle glaucoma; MD, mean deviation; CDR, cup-to-disc ratio.



Supplemental Figure S5. The brain regions with abnormal CBF/FCS ratio are showed by red color. The regions with significant correlations between CBF/FCS ratio and three neuropsychological assessments (STAI-S, STAI-T and BDI) in patients with POAG are presented by blue, green and yellow color, respectively. The results showed there was no overlap between brain regions with abnormal CBF/FCS ratio and regions with the significant correlations.

Abbreviations: CBF, cerebral blood flow; FCS, functional connectivity strength; POAG, primary open-angle glaucoma; STAI-S and STAI-T, State-Trait Anxiety Inventory; BDI, Beck Depression Inventory.

Supplemental Table S1 Brain regions with altered CBF/FCS ratios in early POAG patients compared with NC group

Brain regions	Vox els	MNI coordinates(mm)			Peak intensity
		x	y	z	
Lingual Gyrus	33	3	-81	-3	-4.3121
Right angular	52	39	-54	33	5.3610
Right middle frontal gyrus	47	33	24	36	6.4886

GRF correction voxel $Z > 3.090232$, cluster $P < 0.05$, cluster size 16 voxels

Abbreviations: FCS, functional connectivity strength; CBF, cerebral blood flow; POAG, primary open angle

glaucoma; NC, normal controls; GRF, Gaussian Random Field Theory.

Supplemental Table S2. Brain regions with significant differences in CBF/FCS ratio between POAG and NC groups after correction with GMV as covariates

Brain regions	Voxels	MNI coordinates(mm)			Peak intensity
		x	y	z	
POAG < NC					
Lingual Gyrus	29	3	-84	-6	-4.7699
Rectal Gyrus	46	15	18	-27	-4.9361
Right inferior temporal gyrus	25	48	-42	-33	-4.6908
Right superior temporal gyrus	50	66	-30	15	-5.1965
POAG > NC					
Right angular	23	39	-54	33	4.2288
Right middle frontal gyrus	28	30	24	36	4.5032

GRF correction voxel $Z > 3.090232$, cluster $P < 0.05$, cluster size 18 voxels

Abbreviations: FCS, functional connectivity strength; CBF, cerebral blood flow; GMV, gray matter volume; POAG, primary open angle glaucoma; NC, normal controls; GRF, Gaussian Random Field Theory.

Supplemental Table S3 Regions showing significant correlations between CBF/FCS ratio and ophthalmologic measures in POAG patients

Ophthalmologic measures	Brain regions	Voxels	MNI coordinates(mm)			<i>r</i> -Score for Peak intensity
			x	y	z	
MD	Lingual Gyrus	32	0	-78	0	0.5868
Glaucoma stage	Lingual Gyrus	16	-18	-93	-9	-0.5720
Glaucoma stage	Left supramarginal gyrus	27	-60	-33	33	-0.6563
CDR	Cingulate and precuneus gyrus	51	0	-54	33	-0.6067

GRF correction voxel $Z > 3.090232$, cluster $P < 0.05$

Abbreviations: CBF, cerebral blood flow; FCS, functional connectivity strength; POAG, primary open-angle glaucoma; MD, mean deviation; CDR, cup-to-disc ratio.

Supplemental Table S4 Regions showing significant correlations between CBF/FCS ratio and neuropsychological assessments in POAG patients

Neuropsychological assessments	Brain regions	Voxels	MNI coordinates(mm)			<i>r</i> -Score for Peak intensity
			x	y	z	
STAI-T	Right middle occipital gyrus	21	24	-99	12	0.6040
STAI-T	Right cingulate gyrus	28	18	-42	48	-0.5559
STAI-S	Left caudate	16	-15	21	0	0.6207

BDI	Right superior temporal gyrus	23	54	15	-18	0.5639
BDI	Left caudate	33	0	15	0	0.6961
BDI	Lingual Gyrus	23	-3	-66	-3	0.6174
BDI	Right anterior cingulate	41	9	48	0	0.6438
BDI	Right rolandic operculum	26	45	-18	12	0.6388

GRF correction voxel $Z > 3.090232$, cluster $P < 0.05$

Abbreviations: CBF, cerebral blood flow; FCS, functional connectivity strength; POAG, primary open-angle glaucoma; STAI-S and STAI-T, State-Trait Anxiety Inventory; BDI, Beck Depression Inventory.