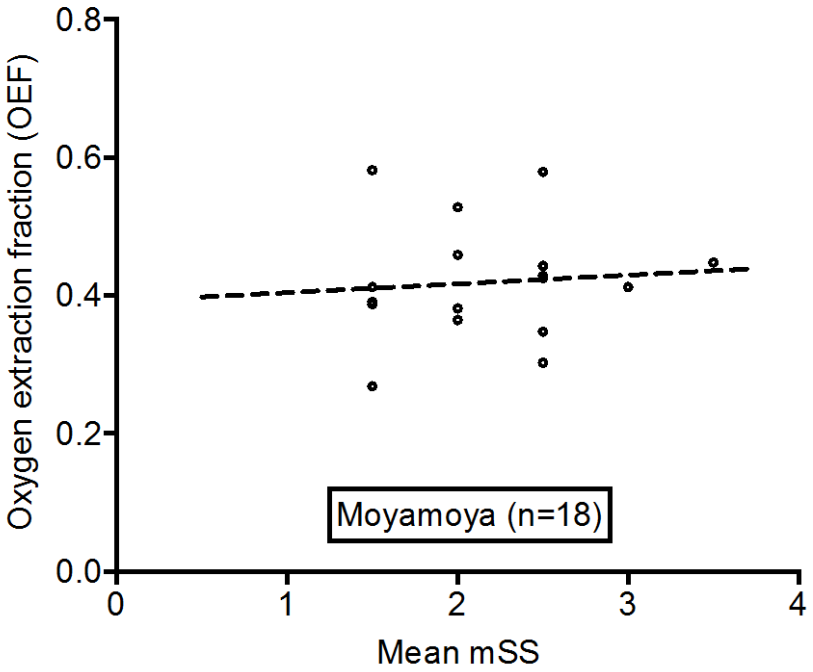
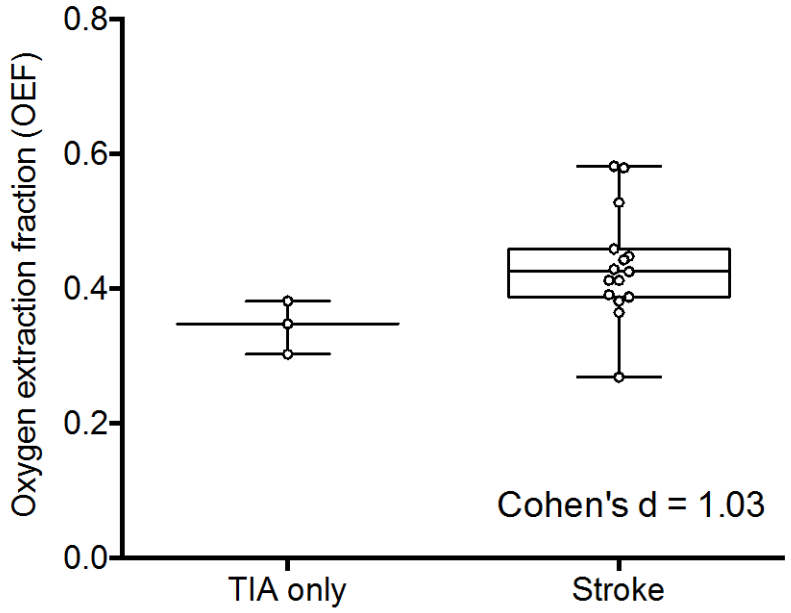
ONLINE SUPPLEMENT

Hemodynamic mechanisms underlying elevated oxygen extraction fraction (OEF) in moyamoya and sickle cell anemia patients



Supplemental Figure I. OEF measurements as a function of mean modified Suzuki score (mSS; mean of right and left hemisphere). No significant relationship was observed between mean mSS and whole-brain OEF.



Supplemental Figure II. OEF measurements in patients with transient ischemic attack (TIA) only (n=3) compared to patients with imaging findings consistent with infarct on FLAIR imaging > 3mm. In the current sample, patients with overt stroke relative to TIA had a higher OEF, however additional studies with more patients are required to understand the relationship between OEF and stroke risk in this population.

Group	n	PLD (seconds)	Tau (seconds)	PLD + Tau (seconds)
SCA arm				
Controls	11	1.9	1	2.9
SCA patients	18	1.9	1	2.9
Moyamoya arm				
Control group 1	2	1.7	1.5	3.2
Control group 2	3	1.9	1.5	3.5
Control group 3	9	1.8	1.65	3.45
Control group 4	11	1.9	1	2.9
Control group 5	18	1.525	1.65	3.175
Moyamoya patients I	10	1.525	1.65	3.175
Moyamoya patients II	8	1.8	1.65	3.45

Supplemental Table I. Pseudo-continuous arterial spin labeling (pCASL) parameters used for the SCA and moyamoya arm of the study.

Measurements (mean values)	Moyamoya Arm		Sickle cell anemia arm	
	Controls (n=43)	Moyamoya (n=18)	Controls (n=11)	SCA (n=18)
R_2 (1/s)	15.14	18.39	15.52	13.09
90% confidence interval of R_2 (1/s)	2.65	2.93	2.40	1.48
Standard error of R_2 (1/s)	0.68	0.88	0.61	0.38
Venous oxygen saturation (Yv) (%)	63.7	56.3	62.4	56.5
Standard error of Yv (%)	1.62	1.50	1.41	0.83

Supplemental Table II. Mean values of venous blood water $R_2=1/T_2$, 90% confidence intervals of R_2, standard error of R_2, venous oxygenation, and standard error of venous oxygenation for each participant group. Neither the confidence intervals nor standard errors varied between groups.