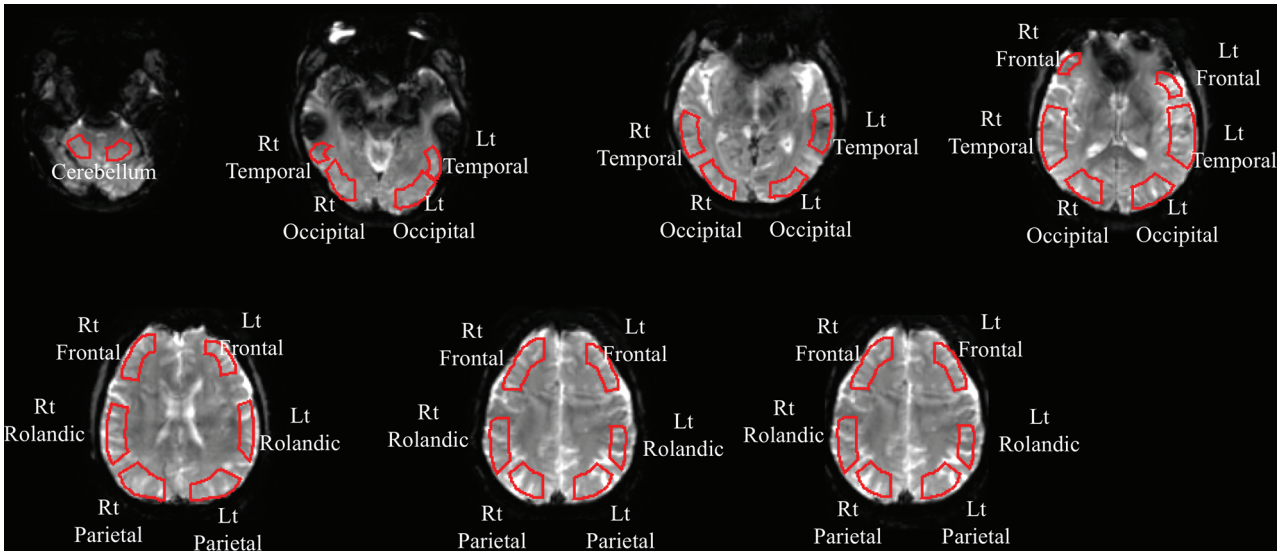
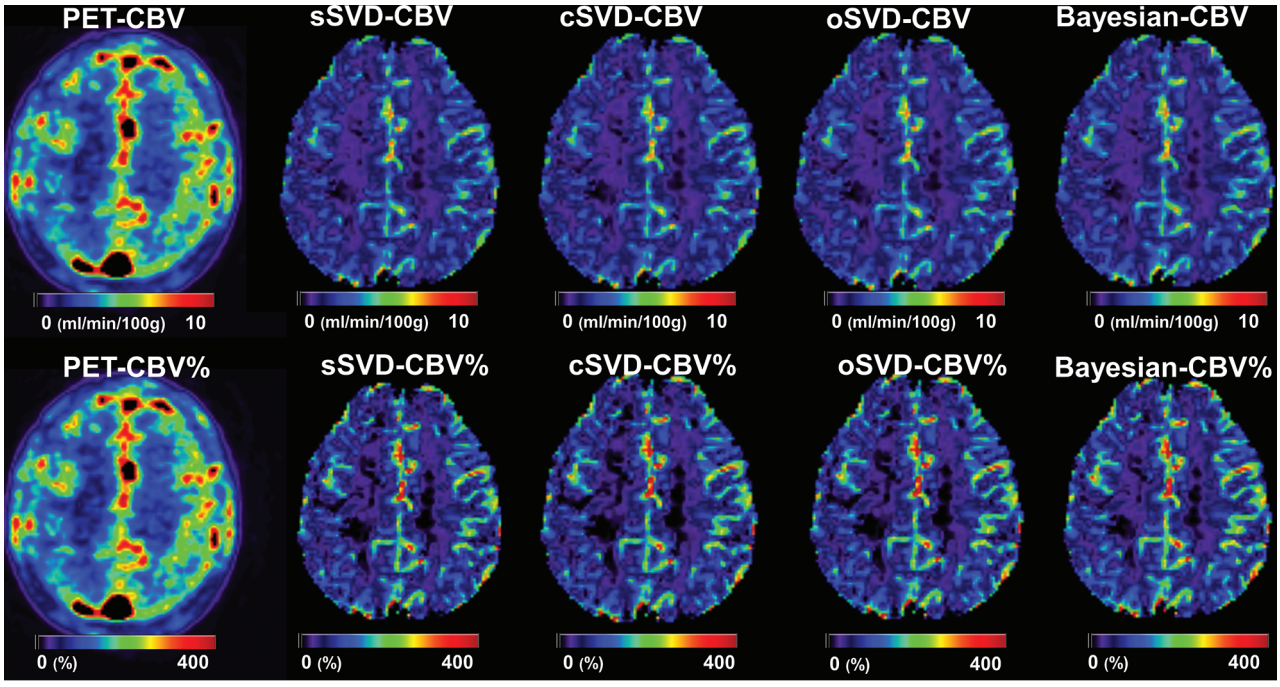
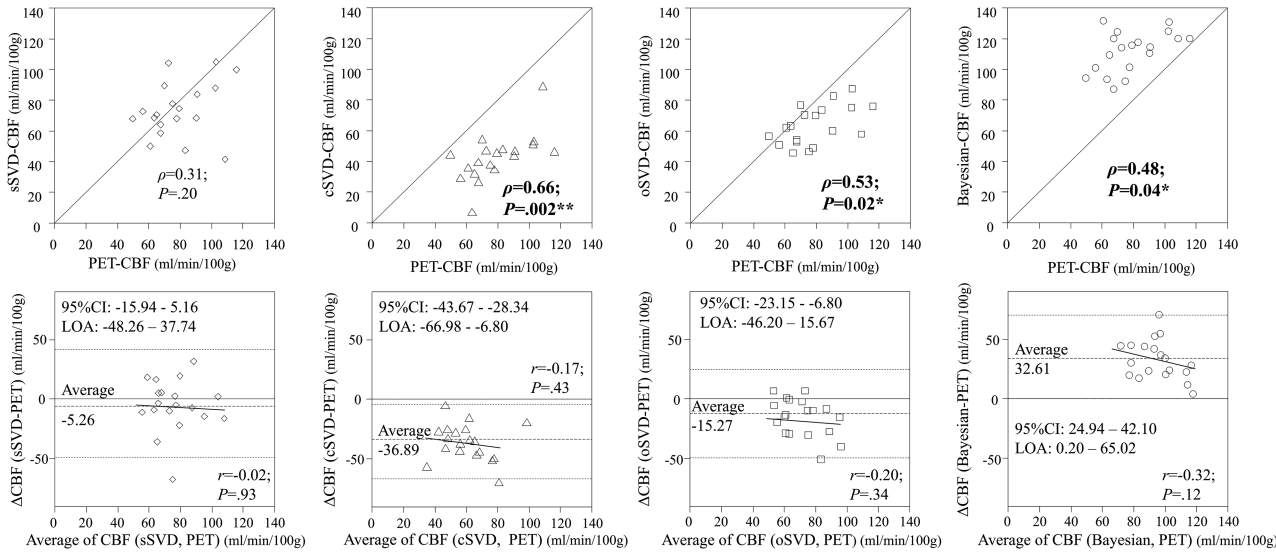



**ON-LINE FIG 1.** Examples of ROIs used in this study (the same patient as in Fig 1). ROIs were placed on the cortex while avoiding susceptibility artifacts. Rt indicates right; Lt, left.




**ON-LINE FIG. 2.** CBV maps of DSC and PET in each method (the same patient as in Fig 1). Visually, there is no difference among DSC methods, and all CBV maps show increased CBV in the left hemisphere.




**ON-LINE FIG 3.** Bland-Altmann analysis between CBF of DSC and PET in the cerebellum. There are significant correlations of true CBF measured with PET with cSVD and with oSVD as well as with the Bayesian method, but not with sSVD. The CBF of cSVD significantly underestimates the true CBF. LOA indicates limit of agreement defined as average $\pm 1.96 \times$ SD.

**On-line Table 1: Details of patients' backgrounds**

| Age (yr) | Sex | Presentation History | Previous Operation | Brain Lesion Visible on Conventional MR Imaging | MRA Stage | | Decreased CBF (PET) | | PET/DSC, Interval (Days) | Stroke-DSC, Interval (Days) | Surgery-DSC, Interval (Days) | *p.R4810K*, Gene Variant |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Rt | Lt | Rt | Lt | | | | |
| 29 | F | TIA (Bil) | | | 3 | 3 | Yes | | 27 | | | Hetero |
| 22 | F | Headache | | WMH (Lt F) | 4 | 3 | Yes | Yes | 34 | | | NA |
| 52 | M | ICH | | Lt thalamic ICH, WMH (Bil F) | 4 | 2 | Yes | | 13 | 394 | | NA |
| 40 | F | TIA (Bil) | | | 3 | 3 | | | 27 | | | NA |
| 39 | F | TIA (Bil) | | | 3 | 3 | | | 48 | | | Hetero |
| 28 | F | ICH, IVH, infarction | Ventricular drainage (Rt) | Infarction (Rt F + T + P) | 3 | 3 | | | 13 | 263 | 263 | NA |
| 22 | M | IVH | | WMH (Rt F), T2*low (Rt deep WM) | 4 | 3 | Yes | | 43 | 266 | | Hetero |
| 33 | M | ICH | | Old ICH (Rt parietal-corona radiata) | 3 | 3 | | | 28 | 160 | | Hetero |
| 46 | M | ICH | Hematoma removal (Lt) | Old ICH (Lt T + P) | 3 | 3 | | | −22 | 210 | 208 | NA |
| 48 | M | None | | WMH (Bil) | 2 | 3 | | Yes | 57 | | | Homo |
| 40 | M | TIA (Lt) | | None | 4 | 2 | Yes | | 43 | | | Hetero |
| 38 | M | Infarction | | Infarction (Lt F + T) | 2 | 3 | | Yes | 43 | 48 | | NA |
| 46 | F | TIA (Rt)/ infarction | | Infarction (Lt F) | 3 | 3 | Yes | Yes | 1 | 48 | | Hetero |
| 41 | M | TIA (Lt)/infarction | | Infarction (Rt F + T) | 4 | 4 | Yes | Yes | 8 | 22 | | Hetero |
| 42 | F | TIA (Lt) | | | 3 | 3 | Yes | | 43 | | | Hetero |
| 43 | F | TIA (Lt) | | | 3 | 3 | Yes | | 29 | | | NA |
| 28 | F | TIA (Rt)→IVH | Indirect bypass surgery (Lt) | T2* low (Lt periventricular), infarction (Rt F) | 3 | 3 | | | 36 | 161 | 2295 | Hetero |
| 45 | F | Infarction | | Infarction (Rt O, Lt F) | 4 | 3 | Yes | | 50 | 730 | | Hetero |
| 47 | M | TIA (Lt) | | WMH (Lt F) | 1 | 4 | | Yes | 22 | | | Hetero |

**Note:**—Bil indicates bilateral; Lt, left; Rt, right; ICH, intracerebral hemorrhage; IVH, intraventricular hemorrhage; WMH, white matter hyperintensity; F, frontal lobe; T, temporal lobe; P, parietal lobe; O, occipital lobe; NA, not available; → subsequently developed; Hetero, heterogeneous; Homo, homogeneous.

**On-line Table 2: *P* values comparing the sensitivity, specificity, positive predictive value, and negative predictive value of each method**

| *P* Value | Sensitivity | Specificity | Positive Predictive Value | Negative Predictive Value |
|---|---|---|---|---|
| Bayesian vs sSVD | 1.00 | .08 | .08 | .56 |
| Bayesian vs cSVD | .008[a] | .08 | .009[a] | .002[b] |
| Bayesian vs oSVD | .025[a] | .16 | .06 | .01[a] |
| sSVD vs cSVD | .008[a] | 1.00 | .14 | .01[a] |
| sSVD vs oSVD | .025[a] | .56 | .71 | .05 |
| cSVD vs oSVD | .025[a] | .16 | .06 | .01[a] |

[a] $P < .05$.
[b] $P < .005$.

**On-line Table 3: *P* values comparing $\rho$ values of each method**

| *P* Value | CBF | CBF% | CBF (Cerebellum) |
|---|---|---|---|
| Bayesian vs sSVD | .04[a] | .02[a] | .51 |
| Bayesian vs cSVD | .11 | <.001[b] | .45 |
| Bayesian vs oSVD | .37 | <.001[b] | .85 |
| sSVD vs cSVD | .67 | .33 | .18 |
| sSVD vs oSVD | .003[b] | .03[a] | .45 |
| cSVD vs oSVD | .01[a] | .21 | .18 |

[a] $P < .05$.
[b] $P < .005$.

**On-line Table 4: Comparison of the relationship between DSC-CBF and PET/CBF in hemispheres with visually normal CBF and in hemispheres with visually decreased CBF**

| | CBF (mL/min/100 g) | | | CBF% | | |
|---|---|---|---|---|---|---|
| | Correlation | Difference with PET | | Correlation | Difference with PET | |
| | Spearman $\rho$(*P*) | Average (95% CI) | Regression *r*(*P*) | Spearman $\rho$(*P*) | Average (95% CI) | Regression *r*(*P*) |
| Normal CBF ($n = 110$) | | | | | | |
| sSVD | 0.29 (.002[b]) | 16.15 (13.08–19.22) | 0.03 (.72) | 0.54 (<.001[b]) | 21.86 (18.66–25.07) | 0.46 (<.001[b]) |
| cSVD | 0.37 (.001[b]) | −7.52 (−9.92 to −5.13) | −0.67 (<.001[b]) | 0.49 (<.001[b]) | 40.30 (36.66–43.94) | 0.52 (<.001[b]) |
| oSVD | 0.60 (<.001[b]) | 18.82 (16.67–20.98) | −0.30 (<.001[b]) | 0.36 (<.001[b]) | 44.66 (47.67–39.65) | 0.50 (<.001[b]) |
| Bayesian | 0.50 (<.001[b]) | 51.19 (48.70–53.68) | −0.14 (.13) | 0.60 (<.001[b]) | 23.52 (21.51–25.53) | −0.38 (<.001[b]) |
| Decreased CBF ($n = 80$) | | | | | | |
| sSVD | 0.25 (.03[a]) | 11.32 (7.81–14.83) | 0.44 (<.001[b]) | 0.32 (.006[a]) | 30.99 (25.63–36.35) | 0.75 (<.001[b]) |
| cSVD | 0.40 (<.001[b]) | 0.84 (−1.36–3.06) | 0.06 (.62) | 0.35 (.001[b]) | 55.72 (50.92–60.51) | 0.71 (<.001[b]) |
| oSVD | 0.49 (<.001[b]) | 24.44 (21.55–27.33) | 0.42 (<.001[b]) | 0.20 (.08) | 60.27 (55.59–64.96) | 0.64 (<.001[b]) |
| Bayesian | 0.44 (<.001[b]) | 41.90 (38.71–45.10) | 0.55 (<.001[b]) | 0.41 (<.001[b]) | 22.41 (19.11–25.71) | 0.47 (<.00[b]) |

[a] $P < .05$.
[b] $P < .005$.

**On-line Table 5: The relationship between CBV of PET and DSC in each method**

| | CBV (mL/min/100g) | | | CBV% | | |
|---|---|---|---|---|---|---|
| | Correlation | Difference with PET | | Correlation | Difference with PET | |
| | Spearman $\rho$(*P*) | Average (95% CI) | Regression *r*(*P*) | Spearman $\rho$(*P*) | Average (95% CI) | Regression *r*(*P*) |
| sSVD | 0.27 (<.001[b]) | 1.29 (1.03–1.54) | −0.17 (.02[a]) | 0.40 (<.001[b]) | −1.60 (−8.69–5.48) | −0.08 (.29) |
| cSVD | 0.34 (<.001[b]) | 1.11 (0.87–1.35) | −0.18 (.02[a]) | 0.41 (<.001[b]) | −1.94 (−9.03–5.16) | −0.09 (.18) |
| oSVD | 0.34 (<.001[b]) | 1.10 (0.86–1.35) | −0.18 (.01[a]) | 0.41 (<.001[b]) | −2.27 (−9.36–4.83) | −0.11 (.14) |
| Bayesian | 0.34 (<.001[b]) | 1.08 (0.84–1.32) | −0.24 (.001[b]) | 0.42 (<.001[b]) | −1.51 (−8.38–5.37) | −0.14 (.05) |

[a] $P < .05$.
[b] $P < .005$.