ON-LINE APPENDIX: SITE ACQUISITION AND POSTPROCESSING METHODS

Site 1

Using 1.5T or 3T MR imaging scanners (Avanto, Skyra, or Espree; Siemens, Erlangen, Germany), we performed DWI by applying diffusion gradients with 2 different b-values (0 and 1000 s/mm^2); TR/TE, 4200/85 ms; flip angle, 90°; 128 × 128 matrix; 5-mm section thickness; and 240-mm FOV. Dynamic susceptibility contrast PWI datasets were acquired after contrast infusion (gadobutrol 0.1 mmol/kg, Gadovist; Bayer HealthCare Pharmaceuticals, Montville, New Jersey) by using TR/TE, 1250/34 ms; flip angle, 90°; 128 × 128 matrix; 5-mm section thickness; and 240-mm FOV. MR PWI color maps of relative cerebral blood volume, cerebral blood flow, mean transit times, and time-to-peak time-to-maximum were generated from DSC MR images on the scanner or Leonardo (Siemens) workstation using syngo Neuro Perfusion evaluation postprocessing software (Siemens).

CTP imaging was performed using a multidetector CT scanner (Definition AS+; Siemens) at multiple levels centered at the level of the basal ganglia after dynamic contrast infusion of 40 mL iopamidol (Isovue-370; Bracco Diagnostics, Princeton, New Jersey) at rate of 5 mL/s with the following technical parameters for the cine scan: 80 kV(peak), 200 mAs, 512 × 512 matrix, 6-mm section thickness (9 cm volume), and 23-cm FOV. CTP color maps of relative CBV, CBF, and MTT were generated on the Vitrea workstation, Version 6.4, using Brain Perfusion CT software (Vital Images, Minnetonka, Minnesota).

Site 2

Using a 1.5T MR imaging scanner (Signa HDx16.0; GE Healthcare), we performed DWI with TR/TE, 10,000/99 ms; flip angle, 90°; 128 × 128 matrix; 5-mm section thickness; and 230-mm FOV. DSC PWI datasets were acquired after contrast infusion (gadopentetate dimeglumine, 0.1 mmol/kg, Magnevist; Bayer HealthCare Pharmaceuticals) using TR/TE, 1350/13.5–20 ms; flip angle, 60°; 80 × 96 matrix; 5-mm section thickness; and 220-mm FOV. MR PWI color maps of relative CBV, CBF, MTT, and TTP were generated from DSC MR images on the scanner using internal Brain Stat γ variable fit algorithm postprocessing software (GE Healthcare).

CTP imaging was performed using a multidetector CT scanner (Somatom Volume Zoom; Siemens) at multiple levels centered at the level of the basal ganglia after dynamic contrast infusion of 40 mL of iohexol (Omnipaque-350; Amersham Health, Princeton, New Jersey) at 6 mL/s with the following technical parameters for the cine scan: 80 kVP, 200 mAs, 512 × 512 matrix, 5-mm section thickness (10-cm volume), and 20-cm FOV. CTP color maps of relative CBV, CBF, and MTT were generated on the scanner using syngo Volume Perfusion CT Neuro postprocessing software (Siemens).

Site 3

Using a 1.5T MR imaging scanner (Echelon Vega; Hitachi Medical, Tokyo, Japan), we performed DWI with TR/TE, 3787/92 ms; flip angle, 90°; 128 × 128 matrix; 5-mm section thickness; and 260-mm FOV. DSC PWI datasets were acquired after contrast infusion (gadobenate dimeglumine, 0.1 mmol/kg, MultiHance; Bracco Diagnostics) using TR/TE, 1881/50 ms; flip angle, 90°; 128 × 128 matrix; 7-mm section thickness; and 250-mm FOV. MR PWI color maps of CBV, CBF, and MTT were generated from DSC MR images on the scanner using internal Hitachi postprocessing software (Hitachi Medical Systems, Twinsburg, Ohio).

CTP imaging was performed using a multidetector CT scanner (LightSpeed; GE Healthcare) at multiple levels centered at the level of the basal ganglia after dynamic contrast infusion of 40 mL of iopromide (Ultravist-370; Bayer HealthCare Pharmaceuticals) at rate of 5 mL/s with the following technical parameters for the cine scan: 80 kVP, 200 mAs, 512 × 512 matrix, 5-mm section thickness (4- to 8-cm volume); and 25-cm FOV. CTP color maps of relative CBV, CBF, and MTT were generated on a Vitrea workstation, Version 6.4, using Brain Perfusion CT postprocessing software (Vital Images).

Site 4

CTP imaging was performed using a multidetector CT scanner (Brilliance; Philips Healthcare, Best, the Netherlands) at multiple levels centered at the level of the basal ganglia after dynamic contrast infusion of 40 mL iopamidol (Isovue-370; Bracco Diagnostics) at rate of 4–5 mL/s with the following technical parameters for the cine scan: 80 kVP, 200 mAs, 512 × 512 matrix, 5- to 10-mm section thickness (8-cm volume), and 25-cm FOV. CTP color maps of relative CBV, CBF, and MTT were generated on the scanner or Vitrea workstation, Version 6.4, by using Brain Perfusion CT software (Vital Images) with Brilliance software (Philips Healthcare).