Methods

The parameters used for gradient-echo images in the THRACE trial were the following: median slice thickness, 5 mm (range, 4–6 mm); median interslice gap, 0.5 mm (range, 0–2 mm); median flip angle, 18° (range, 15°–90°); median TE, 18 ms (range, 9–67 ms); median TR, 700 ms (range, 400-5525 ms); median voxel size, 3.96 μm (range, 1.19–7.3 2 μm).

Two readers, with 2 and 5 years of experience, respectively, blindly reviewed the TL-SVS images and performed the overR measurements. The second reader did this twice, 1 week apart, in order to analyze the intrareader agreement.

Statistical Analysis. Statistical analysis was performed with R statistical and computing software, Version 3.3.1 (http://www.r-project.org/), using the ROCR (https://cran.r-project.org/web/packages/ROCR/index.html) and MASS (https://cran.r-project.org/web/packages/MASS/index.html) packages with the following script in order to determine optimal cutoffs of overR at 1.5T and 3T (On-line Figure):

```
#pred <- prediction(overR,CES)
perf <- performance(pred, "auc")
plot(perf)
perf@y.values[[1]]#
```

The HOR was defined as an overR value superior to the optimal cutoff value. We calculated the diagnostic values for the TL-SVS and HOR (sensitivity, specificity, positive predictive value [PPV], negative predictive value [NPV], accuracy rate) to predict CES, separately or in association.

Inter- and intrareader agreement for the TL-SVS and HOR were assessed using an unweighted κ and 95% confidence interval.
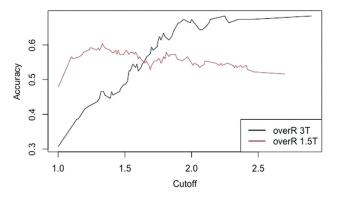
Results

Interreader agreement for the HOR and TL-SVS was 0.84 (95% CI, 0.81–0.87) and 0.87 (95% CI, 0.80–0.93), respectively. Intrareader agreement for the HOR and TL-SVS was 0.85 (95% CI, 0.81–0.89) and 0.90 (95% CI, 0.85–0.95), respectively.

At 3T, an overR of >2.25 yielded a sensitivity of 0.10, a specificity of 0.94, a PPV of 0.43, an NPV of 0.70, and an accuracy of 0.68. At 1.5T, an overR of >1.33 yielded a sensitivity of 0.86, a specificity of 0.37, a PPV of 0.56, an NPV of 0.74, and an accuracy of 0.60.

At 3T, the TL-SVS yielded a sensitivity of 0.45, a specificity of 0.59, a PPV of 0.33, an NPV of 0.71, and an accuracy of 0.54. At 1.5T, an overR of >1.33 yielded a sensitivity of 0.39, a specificity of 0.75, a PPV of 0.59, an NPV of 0.57, and an accuracy of 0.58.

The THRACE trial investigators are the following:

Alain Bonafé (Department of Neuroradiology, Gui de Chauliac Hospital, Montpellier, France), Xavier Leclerc (Department of Radiology, University Hospital of Lille, Lille, France), Nelly Agrinier (Department of Clinical Epidemiology, Institut National de la Santé et de la Recherche Médicale CIC-EC 1433, University of Lorraine and University Hospital of Nancy, Nancy, France), Serge Bakchine (Department of Neurology, University Hospital of Reims, Reims, France), Flore Baronnet (Stroke Unit, Pitié-Salpêtrière Hospital Group and Paris 6 University–Pierre et Marie Curie, Paris, France), Marine Beaumont (Department of Institut National de la Santé et de la Recherche Médicale CIC-IT, University of Lorraine and University Hospital of Nancy, Nancy, France), Yannick Béjot (Department of Neurology, University Hospital of Dijon, Dijon, France), Jérôme Berge (Department of Interventional and Diagnostic Neuroradiology, University Hospital of Bordeaux, Bordeaux, France), Marc Bintner (Department of Neuroradiology, Sud-Reunion Hospital Group, Saint Pierre, France), Romain Bourcier (Department of Interventional and Diagnostic Neuroradiology, University Hospital of Nantes, Nantes, France), Tae Hee Cho (Department of Neurology, University Hospital of Lyon, Lyon, France), Frédéric Clarencon (Department of Interventional Neuroradiology, Pitié-Salpêtrière Hospital Group and Paris 6 University—Pierre et Marie Curie, Paris, France), Julien Cogez (Department of Neurology, University Hospital of Caen, Caen, France), Charlotte Cordonnier (Department of Neurology, University Hospital of Lille, Lille, France), Christian Denier (Department of Neurology, University Hospital of Bicêtre, Le Kremlin-Bicêtre, France), Anne-Laure Derelle (Department of Diagnostic and Interventional Neuroradiology, University Hospital of Nancy, Nancy, France), Olivier Detante (Department of Neurology, University Hospital of Grenoble, Grenoble, France), Anthony Faivre (Department of Neurology, Hôpital d'Instruction des Armées, Sainte Anne, Toulon, France), Anne Ferrier (Department of Neurology, University Hospital Gabriel-Montpied, Clermont-Ferrand, France), Laetitia Gimenez (Department of Neurology, University Hospital of Limoges, Limoges, France), Sophie Godard (Department of Neurology, University Hospital of Angers, Angers, France), Benoît Guillon (Department of Neurology, University Hospital of Nantes, Nantes, France), Emmanuel Houdart (Department of Neuroradiology, University Hospital Lariboisière, Paris, France), Bertrand Lapergue (Department of Neurology, Foch Hospital, Suresnes, France), Mariano Musacchio (Department of Neuroradiology, Pasteur Hospital, Colmar, France), Olivier Naggara (Department of Neuroradiology, Sainte-Anne Hospital and Paris-Descartes University, Institut National de la Santé et de la Recherche Médicale U894, Paris, France), Jean-Philippe Neau (Department of Neurology, University Hospital of Poitiers, Poitiers, France), Michael Obadia (Department of Neurology, Rothschild Ophthalmological Foundation, Paris, France), Anne Pasco-Papon (Department of Radiology, University Hospital of Angers, Angers, France), Michel Piotin (Department of Interventional Neuroradiology [MP],

ON-LINE FIGURE. Diagnostic accuracy of the overestimation ratio according to the cutoffs at 3T and 1.5T.

Rothschild Ophthalmological Foundation, Paris, France), Laurent Pierot (Department of Neuroradiology, University Hospital of Reims, Reims, France), Hélène Raoult (Department of Neuroradiology, University Hospital of Rennes, Rennes, France), Sébastien Richard (Department of Neurology, University Hospital of Nancy, Nancy, France), Frédéric Ricolfi (Department of Neuroradiology, University Hospital of Dijon, Dijon, France), Thomas Ronzière (Department of Neurology, University Hospital of Rennes, Rennes, France), Guillaume Saliou (Department of Neuroradiology, University Hospital of Bicêtre, Le Kremlin-Bicêtre, France), Igor Sibon (Department of Neurology, University Hospital of Bordeaux, Bordeaux, France), Sébastien Soize (Department of Neuroradiology, University Hospital of Reims, Reims, France), Jacques Sedat (Department of Radiology, University Hospital of Nice, Nice, France), Christian Stapf (Department of Neurology, University Hospital Lariboisière, Paris, France), Laurent Suissa (Department of Neurology, University Hospital of Nice, Nice, France), Marie Tisserand (Department of Neuroradiology, Sainte-Anne Hospital and Paris-Descartes University, Institut National de la Santé et de la Recherche Médicale U894, Paris, France), Francis Turjman (Department of Interventional Neuroradiology, University Hospital of Lyon, Lyon, France), and Stephane Velasco (Department of Radiology, University Hospital of Poitiers, Poitiers, France).