



# Overestimation of moderate carotid stenosis assessed by both Doppler US and contrast enhanced 3D-MR angiography in the CARMEDAS study

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**PURPOSE:** To evaluate the agreement and diagnostic accuracy of Contrast enhanced magnetic resonance angiography (CE-MRA), Doppler ultrasound (DUS) and Digital subtraction angiography (DSA) in the assessment of carotid stenosis. **METHODS:** DUS, CE-MRA and DSA were performed in 56 patients included in the Carotide-angiographie par resonance magnetique-echographie-doppler-angioscanner (CARMEDAS) multicenter study with a carotid stenosis  $\geq 50\%$ . Three readers evaluated stenoses on CE-MRA and DSA (NASCET criteria). Velocities criteria were used for stenosis estimation on DUS. **RESULTS:** CE-MRA had a sensitivity and specificity of 96-98% and 66-83% respectively for carotid stenoses  $\geq 50\%$  and a sensitivity and specificity of 94% and 76-84% respectively for carotid stenoses  $\geq 70\%$ . The interobserver agreement of CE-MRA was excellent, except for moderate stenoses (50-69%). DUS had a sensitivity and specificity of 88 and 75% respectively for carotid stenoses  $\geq 50\%$  and a sensitivity and specificity of 83 and 86% respectively for carotid stenoses  $\geq 70\%$ . Combined concordant CE-MRA and DUS had a sensitivity and specificity of 100 and 85-90% respectively for carotid stenoses  $\geq 50\%$  and a sensitivity and specificity of 96-100% and 80-87% respectively for carotid stenoses  $\geq 70\%$ . The positive predictive value of the association CE-MRA and DUS for carotid stenoses  $\geq 70\%$  is calculated between 77 and 82% while the negative predictive value is calculated between 97 and 100%. CE-MRA and DUS have concordant findings in 63-72%, and the overestimations cases were recorded only for carotid stenosis

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