Absent middle cerebral artery signal in transcranial color-coded sonography: A reliable indicator of occlusion?

陳啓仁

Chen YC;Chen ST;Chen CJ;Lee TH;

摘要

Abstract

BACKGROUND: Assess the accuracy of transcranial color-coded sonography (TCCS) for detecting middle cerebral artery (MCA) stem occlusion and compare it with cerebral angiography. METHODS: This study enrolled a series of patients who received TCCS and cerebral angiography at the Department of Neurology in Chang Gung Memorial Hospital, Linkou Medical Center, Taoyuan, Taiwan, between January 1997 and July 2003. MCA stem occlusion was diagnosed based on digital subtraction angiography and/or computed tomographic angiography. The effect of the supplying artery on the insonation of MCA stem was considered. The sonographic criteria for MCA stem occlusion were defined as absent MCA stem signal + visible signal on the reference arteries, including ipsilateral posterior cerebral artery, ipsilateral anterior cerebral artery or contralateral MCA stem. RESULTS: A total of 419 consecutive patients were enrolled. Factors that significantly influenced MCA stem insonation included > or =50% ipsilateral carotid artery stenosis, > or =50% MCA stem stenosis, female gender, and age > or =60 years. Comparing patients with <50% and those with > or =50% carotid stenosis, the MCA stem insonation rate was significantly reduced from 69.1% to 45.6% ($p < 0.001$). In patients with <50% ipsilateral carotid artery stenosis, the sonographic criteria had a positive predictive value of 10.5% and a negative predictive value of 98.9%, and could predict MCA stem occlusion with high specificity but low sensitivity (specificity = 89.6, sensitivity = 54.5, overall accuracy = 88.9, $p < 0.001$). CONCLUSION: Absent MCA stem signal may result from MCA stem occlusion/tight stenosis and tight stenosis of ipsilateral carotid arteries, and has a limited value in detecting MCA stem occlusion. TCCS can be useful in identifying nonoccluded MCA stem, and cerebral angiography is necessary to confirm MCA stem occlusion.

.