Vascular Medicine

PREDICTIVE ACCURACY OF MICROWAVE RADIOMETRY IN SYMPTOMATIC CAROTID PLAQUE IDENTIFICATION IN ISCHEMIC STROKE

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Authors: Georgios Benetos, Konstantinos Toutouzas, Maria Drakopoulou, Christina Deligianni, Konstantinos Spengos, Andreas Synetos, Eleftherios Tsiamis, Elias Siores, Dimitris Tousoulis, First Department of Cardiology, Athens School of Medicine, Athens, Greece

Background: The factors responsible for carotid plaque destabilization have not been clearly identified. Inflammation seems to play an important role. Microwave Radiometry (MWR) is a new validated method, which allows evaluation of internal tissue temperatures. In this study we aimed to investigate the predictive accuracy of MWR in the culprit carotid artery identification in patients with recent ischemic stroke.

Methods: Consecutive patients with bilateral carotid atherosclerosis and recent ischemic stroke were included in the study. Carotid arteries ipsilateral to cerebral ischemia were assigned as culprit. Both culprit and non-culprit carotid arteries were evaluated by a) ultrasound (maximum plaque thickness-MPT), and b) MWR (ΔTmax). The following models were considered for culprit carotid artery identification: traditional risk factors (TRF - sex, age, smoking, dyslipidemia, arterial hypertension, diabetes mellitus and family history) plus MPT, b)TRF plus ΔT and c) TRF plus MPT plus ΔT.

Results: Fifty patients were included in the study. Culprit carotid plaques had higher ΔT compared to nonculprit (0.98±0.59 versus 0.52±0.26°C, $p<0.001$). In table 1 are summarized the c-statistics of the various models.

Conclusion: MWR allows the identification of culprit carotid arteries in patients with acute ischemic stroke, showing incremental predictive value, when added to ultrasound.

Table 1

Model	C-statistic	95% CI	p-value
TRF+MPT	0.691*‡	0.588-0.794	0.001
TRF+ΔT	0.747‡	0.644-0.850	<0.001
TRF+ MPT+ΔT	0.768*	0.666-0.870	<0.001

*p value for comparison: 0.05

†p value for comparison: 0.36

TRF, traditional risk factors