Authors' Reply to Correspondence entitled "Stuck in the Stenotic Age: What lessons can Stroke learn from Cardiology for the investigation and management of carotid disease?"
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Text of reply:
We are grateful to Evans, Rudd and Warburton for their interest in our review on carotid atherosclerosis and for suggesting additional imaging techniques that might be of value in individualising risk prediction that we did not have space to cover in our review. We agree that stroke medicine has followed in the footsteps of cardiology in several areas, but despite many similarities between coronary and carotid atherosclerotic plaque, there are also several key differences in biomarker morphology and prognosis.[1] There are also differences in the pathophysiology of stroke and ischaemic heart disease. For example, carotid stenosis severity is a major predictor of stroke, but coronary stenosis severity does not predict acute coronary syndromes.[2] These differences indicate that imaging techniques applicable in the coronary arteries are not necessarily applicable to the carotid.

There have been a number of studies using CT to measure calcium content of carotid arteries, but in contrast to the coronary arteries, the studies have shown that carotid calcium content is not a consistent predictor of a high risk of TIA or stroke from carotid atherosclerosis.[3] Indeed, an high level of calcification predicts stability and a low risk of events.[4] However, it might be that the exact location of calcification within the carotid plaque has an influence on risk and we agree that there is further work to be done in this area.

With regard to intravascular ultrasound of the carotid artery, there are at least 29 publications reporting the findings of this modality mainly done at the time of a carotid stenting procedure, but it will never have widespread applicability because passing an intravascular ultrasound probe across a carotid plaque is associated with a significant risk of causing a stroke of about 4%.[5]

MRI reliably detects imaging features of vulnerable carotid plaque, such as intra-plaque haemorrhage which is strongly associated with future stroke risk. Our conclusion is that MR techniques are more useful in everyday practice with regard to identifying patients at risk of stroke than CT or ultrasound.

References

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