

Can A Cardiac CT Scan in an Acute Stroke Setting Make Cardioembolic Aetiology Detection and Management Easier?

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Abbreviations

AF: Atrial Fibrillation; CCT: Cardiac CT.

Dear Editor

Cardioembolic strokes have a higher mortality rate (around 27%), which is higher than other types of strokes. Those patients who have early embolic recurrence (1-10% risk) have an in-hospital mortality rate of up to 77%. Thus, identification of this stroke aetiology is important to reduce morbidity and mortality. Atrial fibrillation (AF) is unanimously considered the most common cause of cardioembolism, but we are yet to be sure about the timing and duration of atrial fibrillation responsible for a stroke. In fact, atrial fibrillation may be caused by a stroke itself (if specific areas are involved, like the insular cortex) or may simply have occurred coincidentally at the time of the stroke, thereby confusing our therapeutic decision-making. In a study, only 17 out of a total of 67 acute thromboembolic events, AF was detected [1].

What if we get evidence of culprit cardiac thrombi along with a transient cardiac arrhythmia to make ourselves sure enough that it was a cardioembolic event?

Cardiac CT (CCT) with delayed image acquisition demonstrated a sensitivity of 98% and a specificity of 100% for detecting LAA thrombus when compared to TEE (a modality not feasible in the setting of acute stroke management) [2]. CCT in the hyperacute stroke setting had a higher yield for intracardiac

thrombus (5–12%) [3]. Since our stroke patients are already undergoing CT angiograms from arch to vertex (in most centres), inclusion of the cardiac CT scan at the same time will be the best option. Besides making sure of stroke etiology, CT may detect type and nature of thrombi (help us to anticipate the chance of systemic/cerebral embolization of the clot post thrombolysis) and feasibility of clot retraction in endovascular therapy (for example calcified clots better detected by CCT are difficult to tackle). CCT adds only two minutes to the scanning protocol in hyperacute stroke imaging if added just after CT angiography.

In spite of modern investigations and comprehensive stroke workups, cryptogenic stroke hovers around 25%. Adding cardiac CT as part of the hyperacute stroke workup identified intracardiac thrombus in 2.7% of patients who were previously known to have cryptogenic stroke [4]. This procedure identified clinically relevant abnormalities in 2.9% of the total, 4.5% of those with initial NIHSS \geq 4 [4]. We need to conduct more trials that implement a combined stroke and cardiac imaging modality, as this will have both therapeutic and stroke etiologic implications in acute stroke treatment and also help in cardio-embolic stroke prevention.

References

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