Opinion

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Posterior circulation stroke, something rare or misdiagnosed?

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According to literature, about 20-25% of all strokes correspond to posterior circulation (PCS) ones and are a significant cause of patient disability and mortality.[1,2] Their diagnosis is very challenging given the complexity of structures and differences on clinical symptoms, imaging and management.[1] Plus, it presents with a high risk of recurrent stroke.[3]

Besides this difficulty, the lack of published articles about this area is something real and a bit surprising. We aim to give a narrower perspective of posterior circulation strokes given the most recent literature we have.

The prompt recognition of posterior circulation symptoms is essential to the right diagnosis and prompt and adequate therapy.[2]

The stroke pathophysiology responsible for posterior and anterior circulation ischemia are very similar, with the most common being atherosclerosis (35%), embolism (40%), small-artery disease or arterial dissection.[2,4]

The non-focal symptoms with substantial overlap with anterior circulation clinic (non-rotatory dizziness, vertigo, headache), give a real challenge to his diagnosis.[2] And with this delay, besides better imaging techniques, the best treatment is postponed in conditions like basilar artery occlusions, where major disability is inherent.[2]

Even the most widespread clinical scale for patients with acute stroke - *National Institutes of Health Stroke Scale (NIHSS)* - have limitations regarding posterior circulation strokes.[5] Some adjustments were made to minimize this and to raise the sensitivity, with statistically significant difference to the use of expanded version (e-NIHSS).[3] They added some elements to the predefined items to explore eventual signs/symptoms of this entity, augmenting the chance of its diagnosis.[5]

It was also showed that the prehospital triage face-arm-speech test score may not be useful for PCS diagnosis, because is more reliable and tested for carotid artery events.[6]

When PCS is present, usually is due to ischemia of a broad area of brain, traducing in a broad range of signs and symptoms with some overlap with anterior circulation symptoms (hemiparesis, hemianopsia and speech changes).[2] There are several studies[7–9] that showed this difficulty and similarity. In one it was described that 10 to 20% of patients presumed to have and ACS had a PCS.[7] Considering the possibility of doing an endovascular procedure with quality-of-life improvement, this shows a big number of misdiagnosed strokes and more morbidity associated.

Three large central observational studies (NEMC-PCR, IPCS-SQR and CSR) evaluated the frequency of the most common posterior circulation signs and symptoms. And the most frequent reported by PCS patients are vertigo, nausea, headache, and alteration of conscious.[7,10,11]

Regarding anterior circulation strokes, there are well defined indications for thrombolysis or endovascular treatment. However, there is a grey area concerning PCS, lacking randomized controlled trials (either with thrombolysis or endovascular treatment).

Being PCS responsible for an elevated morbidity and mortality in acute stroke patients is mandatory to do right and prompt diagnosis. This is very challenging given the complex, overlap and fluctuating symptoms, that can pass unnoticed even on the most use clinical scale - NIHSS. More studies regarding tools to a faster diagnosis and recognition of this entity is needed, as well as for best treatment approach.

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Conflicts of interest

The authors declare no conflicts of interest.

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