

IMAGING STRATEGY IN ACUTE ISCHEMIC STROKE: DIAGNOSTIC CHALLENGE

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Stroke is the third leading cause of death and the most common cause of permanent disability among the world population. Imaging plays a central role in assessing this pathology and various techniques can be used to examine brain and its vessels in acute stroke.

Angio- and perfusion computer tomography (CT) are widely used due to their high availability worldwide. However, MRI diffusion-weighted imaging (DWI) allows earlier and more accurate detection of ischemia. It is used in conjunction with other sequences, especially with susceptibility-weighted imaging (SWI), 3D-time-of-flight MR angiography (MRA), and contrast-enhanced MRA of supra-aortic arteries (CE-MRA), which allows diagnosing occluded arteries or hemorrhage and localizing thrombosis. By means of non-contrast arterial spin labeling (ASL) perfusion, which is of special interest, it is possible to diagnose ischemic penumbra and suggest prognosis in a noninvasive way.

MRI is the most accurate and the most reliable technique for diagnosing ischemic stroke and, in combination with the ASL sequence, for differentiating it from other diseases such as epilepsy and migraine aura. However, CT may be a valuable alternative in case MR is non-available or contraindicated.

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