

Wake-up stroke (WUS) remains one of the most challenging medical problems in acute cerebrovascular disease.

Until recently, the unknown time of symptom onset made these patients eligible only for limited therapeutic options, thereby diminishing the likelihood of a favorable outcome. However, the development of advanced neuroimaging techniques and the revision of approaches to assessing brain tissue viability, have radically expanded treatment possibilities for this patient category.

A paradigm shift was driven by the introduction of advanced MRI and CT protocols, which enabled not only differentiation between the ischemic core and penumbra, but also estimation of “biologic time” of the stroke. Such methods as MRI DWI-FLAIR mismatch, perfusion CT, and CT-angiography, present objective criteria for patients in order for reperfusion therapy, despite the unknown time of symptom onset.

Objective. The aim of this review is to summarize current literature on the pathogenesis, risk factors (RFs), diagnosis, and management of WUS.

Methods. This review is based on the analysis of publications by Russian and international authors from print and online sources over the past 10 years. The following search terms were used: wake-up stroke, computed tomography, magnetic resonance imaging, thrombolysis, and thrombectomy. Studies or articles that did not meet quality standards were excluded.

Results. This review examines current evidence on the pathogenesis, RFs, diagnostic approaches, and treatment strategies for WUS. It describes the role of various MRI sequences in decision-making for reperfusion therapy. Furthermore, it provides an analysis of the literature to define indications for systemic thrombolysis and mechanical thrombectomy in cerebral vessels.

Conclusion. Pharmacological and endovascular treatment in the hyperacute phase of ischemic stroke has evolved considerably over the past two decades. This progress is attributable to improved patient selection criteria, advances in diagnostic imaging, and greater availability of modern thrombectomy devices.