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The Latest Exploration of Cerebrovascular Diseases

Edited by: Basil Grüter and Martina Sebök

The latest exploration of cerebrovascular diseases, which encompasses a range of conditions affecting blood flow to the brain, has marked significant advancements from preclinical research to clinical treatments. Preclinical studies have revealed key mechanisms, risk factors, genetic predispositions, and molecular pathways. Breakthroughs in neuroimaging and biomarkers now enable earlier detection and targeted interventions. On the diagnostic and treatment front, non-invasive, quantitative imaging techniques—such as advanced MRI—improve the assessment of brain hemodynamics and collateral vessels, expanding multimodal options for neurovascular diseases. Cutting-edge therapies, including neuroprotective drugs and refined endovascular techniques, show promise in reducing stroke impact. Regenerative strategies, such as stem cell therapy, aim to repair brain damage and restore function. Personalized medicine is gaining traction, tailoring treatments to genetic and clinical profiles for better outcomes and fewer side effects. Artificial intelligence and machine learning are revolutionizing research and practice, enabling precise diagnosis, predicting disease progression, and optimizing treatment strategies. This integrated approach—from preclinical discoveries to individualized care—marks a new era in combating cerebrovascular diseases, offering hope for improved outcomes and quality of life.

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