

# Imaging Biomarkers for Predicting Recovery in Acute Ischemic Stroke Using CT Perfusion Imaging

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## Introduction

Acute Ischemic Stroke (AIS) is a leading cause of death and disability worldwide. Early identification and treatment of AIS are crucial for improving patient outcomes. Imaging biomarkers, such as CT Perfusion (CTP) and MRI, have been shown to be valuable in predicting recovery in AIS. CTP provides information on cerebral blood flow (CBF) and time to peak (CTP) in the affected brain tissue. MRI, on the other hand, provides information on the extent of the infarct core and the penumbra. The combination of CTP and MRI can provide a more comprehensive assessment of the stroke and help in predicting recovery. This study aims to evaluate the predictive value of CTP and MRI in AIS. The results of this study will be discussed in the following sections.

## The Pathophysiology of Acute Ischemic Stroke and the Importance of Perfusion Imaging

Acute Ischemic Stroke (AIS) is a leading cause of death and disability worldwide. It occurs when a blood vessel supplying the brain becomes blocked, leading to a lack of oxygen and nutrients to the brain tissue. This can result in brain cell death and permanent damage. The pathophysiology of AIS is complex and involves a series of events, including the formation of a thrombus, the migration of the thrombus to the brain, and the subsequent blockage of the blood vessel. The resulting lack of blood flow leads to a cascade of events, including the release of free radicals and the activation of inflammatory pathways. These events ultimately lead to the death of brain cells and the formation of an infarct. Perfusion imaging, such as CT Perfusion (CTP) and MRI, is important in the diagnosis and management of AIS. CTP provides information on cerebral blood flow (CBF) and time to peak (CTP) in the affected brain tissue. MRI, on the other hand, provides information on the extent of the infarct core and the penumbra. The combination of CTP and MRI can provide a more comprehensive assessment of the stroke and help in predicting recovery. This study aims to evaluate the predictive value of CTP and MRI in AIS. The results of this study will be discussed in the following sections.

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CTP, AIS, MTT, CTP, CBE, CBV, . I, . O, . F, . I, . E, . A, AIS, [8].

**Conclusion**

CT, . B, CTP,