of a rabbit by bilateral carotid artery occlusion. Two types of animal models were measured with our device.

Results: The MIPS value gradually decreased with increasing injected blood and increased with ischemia time. The MIPS changes induced by the two types of strokes were exact opposites, and the absolute values of MIPS variation in the hemorrhagic and the ischemic groups were significantly larger than those of the normal control group ($P > 0.05$).

Conclusions: The tested technique can differentiate ischemic stroke from hemorrhagic stroke on rabbit brain in a non-invasive, continuous, and bulk monitoring manner by using a simple and inexpensive apparatus.

Keywords: Magnetic inductive phase shift (MIPS), Hemorrhagic stroke, Ischemic stroke

1.0 BACKGROUND

Stroke can be classified into two kinds, namely, hemorrhagic and ischemic. The incidence rate of this medical condition continuously increases with the aging of the global population and the intensification of social pressure. The latest statistics issued by the Ministry of Health of the People's Republic of China reveal that stroke is the first cause of death among all diseases in China, and its standardized mortality rate in the country ranks first in the world. Besides, such a mortality rate continues to increase at a yearly rate of 9%. Approximately 2 million people suffer a stroke each year. Among this population, nearly half die, and roughly 3/4 of the survivors experience varying degrees of disability. Stroke has brought severe economic burdens to China and its people, and this situation emphasizes the urgency for the prevention and control of such a medical condition [1]. Ischemic stroke (obstruction of blood flow) accounts for nearly 80% of all stroke cases, and hemorrhagic stroke (bleeding into brain or on the surface of the brain) accounts for the remaining 20% [2]. The early thrombolytic treatment of ischemic stroke is an established procedure today, but it could be disastrous when performed on patients with hemorrhagic stroke [3–5]. At present, computed tomography (CT) and magnetic resonance imaging (MRI) are used to differentiate hemorrhagic stroke from ischemic stroke. The early use of thrombolytic therapy immediately after the