INTODUCTION

Stroke is an injury to central nervous system that is characteristically abrupt in onset and due vascular insult. The term is reflectively of damage to brain secondary to ischemia or hemorrhage. ***(Beauchamp NJ, et al.,2004)***

Human stroke is the third cause of mortality in most countries. It's the commonest cause of prolonged disability & morbidity in most societies. Ischemia account for most of the causes of cerebrovascular stroke about 85% while cerebral hemorrhages 15% of cases. ***(Rima k, et al.,2003).***

CT is considered the 1st choice in early detection of cerebral hemorrhage as it is the fastest and easiest technique in such cases which needs urgent detection & management either surgical or conservative treatment giving upper hands on other modalities of techniques as MRI and PET scan that takes long time and exposure to ionic radiation but in cases of brain ischemia CT can detect brain infarctions in 48-72 hour after onset of symptoms. ***(Beauchamp NJ, et al.,2004).***

Diffusion-weighted image (DW) magnetic resonance (MR) imaging provides potentially unique information on the viability of brain tissue. It provides image contrast that is depending on the molecular motion of water, which may be substantially altered by disease. The method was introduced into clinical practice in the middle 1990, but because of its demanding MR engineering requirement primarily high performance magnetic field gradient. It has only recently undergone widespread dissemination. ***(Schaefer PW, et al.,2005).***

Diffusion-weighted imaging can depict ischemic tissue in rate after a middle cerebral artery occlusion, with decreased diffusion within 5 minutes.***(Liu y et al.,2004).***

Perfusion-weighted image offers information about perfusion at the micro vascular level, but MR angiography can be used to obtain information about vascular anatomy and the dynamics of blood flow. By using the phase contrast technique, the MR angiographic image can be acquired in less than 1 minute. ***(Liu y et al.,2004).***

Perfusion-weighted imaging permits the detection of hemodynamics changes. In many patients with acute ischemic stroke, the volume of hypoperfused tissue on perfusion- weighted maps is larger than the volume of tissue with decreased diffusion on diffusion weighted image. ***(Kaonen JO. et al.,2005).***

This mismatch between the volumes of abnormal tissue on perfusion and diffusion weighted images in the same imaging session can be considered as an estimate of ischemic penumbra and thus may be a predictor of potential infarct growth and show great promise in the diagnosis of acute stroke. ***(Kaonen JO. et al.,2005).***