SHORT COMMUNICATION

NEED OF THE HOUR TO USE MR PERFUSION TO DIFFERENTIATE BETWEEN RADIATION NECROSIS AND TUMOUR RECURRENCE IN KNOWN GLIOMA PATIENTS

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Conventional MR imaging may be non-specific in diagnosing low-grade gliomas. Better modalities are used nowadays including MRS (spectroscopy), perfusion, and diffusion-weighted imaging.[1]

MR perfusion is better than CT perfusion in various aspects. MR perfusion does not expose the patient to ionizing radiation. CT perfusion, on the other hand, can be harmful if the patient receives repeated doses. However, CT perfusion may be more readily available in emergency settings and can be quicker to perform than MR perfusion, which requires a longer acquisition time. CT perfusion can also provide more precise measurements of blood flow in small vessels than MR perfusion. Ultimately, the choice between MR perfusion and CT perfusion depends on the specific clinical situation and the preferences of the medical team.

Perfusion MRI studies have become an increasingly important tool in the management of high-grade gliomas as well. Perfusion MRI allows clinicians to assess the vascularity of these tumors, providing information on tumor grade, response to treatment, and prognosis. Perfusion imaging can be performed using various techniques, including dynamic susceptibility contrast (DSC) MRI and arterial spin labeling (ASL) MRI. DSC-MRI is the most commonly used technique, and it provides information on cerebral blood volume (CBV) and cerebral blood flow (CBF) in the tumor and surrounding tissue. ASL-MRI, on the other hand, measures blood flow by magnetically labeling arterial blood water protons and can provide information on tumor perfusion without the use of contrast agents. Overall, perfusion MRI studies have demonstrated significant potential for improving the diagnosis, management, and prognosis of high-grade gliomas. MR brain perfusion is a type of imaging technique that can be used to differentiate between radiation-related changes and tumor recurrence in patients who have undergone radiation therapy for brain tumors.[2]

Tumor resection followed by chemoradiation remains the current criterion standard treatment for high-grade gliomas. Radiation therapy can cause changes in the brain that may appear similar to tumor recurrence on conventional MRI scans. However, MR brain perfusion can detect differences in blood flow patterns between tumor tissue and normal brain tissue, which can help to differentiate between radiation-related changes/necrosis and tumor recurrence.[3]

Every institute should start using MR perfusion studies to differentiate these. This will eventually help in patient

correct diagnosis and reduction in morbidity and mortality.

Key-words: Gliomas, MR Perfusion, CT Perfusion, Tumour Recurrence, Radiation Necrosis.

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