Diffusion weighted imaging (DWI) is increasingly becoming a cornerstone in neuroimaging.

Although its utility was initially mainly in assessing diffusion in high-grade gliomas, its role in CNS lesion assessment continues to expand. DWI is of particular interest in the evaluation of patients with acute stroke or tumor. DWI is sensitive to water diffusivity, which is affected by various factors such as tissue characteristics, cellularity, and blood-brain barrier integrity.

**HEAD AND NECK**

- ADC maps are used to evaluate the degree of restriction in water diffusion.
- Lesions with restricted diffusion often appear hyperintense on DWI and hypointense on ADC maps.

**SPINE**

- DWI is also useful in evaluating spinal lesions, such as spinal cord injuries and metastatic spine lesions.
- T2-weighted images often show lesions, but DWI can provide additional information on the degree of diffusion restriction.

**BRAIN**

- DWI can help differentiate between acute and chronic stages of ischemic stroke.
- Restricted diffusion on DWI is characteristic of acute ischemic stroke, while diffusion will return to normal on ADC maps.

**REFERENCES**